A CRITICAL STUDY OF INFORMATION SYSTEM STRATEGY FORMATION IN A PUBLIC SECTOR CONTEXT

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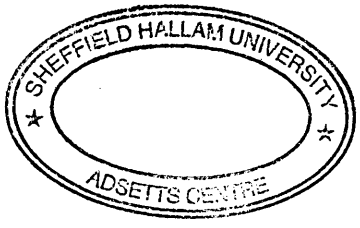
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CONTENTS

LIST OF FIGURES

LIST OF TABLES

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ABSTRACT OF THE THESIS

This thesis comprises a critical examination of Information System Strategy (ISS) formation in a public sector context, namely the Police Service in Scotland. Despite the apparent importance attached to ISS, and the proliferation of many methods to assist those engaged in ISS formation, the practice of ISS formation remains comparatively ill-understood.

The concepts of strategy and power can be viewed as being closely linked. Using theory based accounts of power, we put forward a multi-dimensional conceptualisation of power as an aid to organisational analysis of ISS formation. Consequently, the focus of this work is not only a detailed investigation into ISS formation practice, but also one in which we evaluate the way in which a multi-dimensional conceptualisation of power affects our understanding of ISS formation practice.

This research is based upon six longitudinal case studies of ISS formation in the Police Service. Data collection involved a number of methods: in-depth semi-structured interviews, informal conversation, participation, collection of documentation produced within the case study settings, and collation and analysis of documentary materials from secondary sources.

The abstraction of several themes from a cross-case comparative analysis of issues has led to the development of a conceptual framework which underpins our contribution to knowledge: namely, a means of understanding ISS formation as micro-political activity, based upon an ongoing process of construction and reconstruction of social reality. This in turn can be considered as being based upon individual mental constructs, which in turn are influenced by the themes identified. Our framework has been developed as an epistemological device to aid thinking about ISS formation, rather than as a representation of what an ISS formation process *is*. Implicit in the framework is the contention that ISS formation reflects power relations; however, the practical difficulties in researching power issues should not be underestimated. Several areas for further research arising from this thesis are discussed.

CHAPTER ONE - INTRODUCTION

1.1. THE RESEARCH ISSUE

In this thesis we undertake a critical examination of Information System Strategy (ISS) formation. Here we argue that ISS formation can be viewed as a phenomenon that is socially constructed and reconstructed (Berger & Luckmann, 1967), and that focussing upon the exercise of power can enhance our understanding of ISS formation. We argue that ISS formation can be perceived as being determined through the interaction of people, and from our work we have identified four themes which we have found to be important in the way in which people, socially construct and reconstruct ISS formation. These themes we argue can be understood in terms of the dynamic mental constructs (Jayaratna, 1994) of those involved in the process of social construction and reconstruction in ISS formation.

This research has been motivated by the author's experience of ISS projects in practice and through familiarity with literature in the area. Published work on ISS formation has tended to focus upon *what to do* prescriptions, and the attainment of an outcome - such as improved competitive position, increased profitability, or upon the production of a plan which can then be implemented (e.g. Earl, 1989; Ward & Griffiths, 1996; Robson, 1997). Such work intimates that ISS formation is a relatively straight-forward activity that can be accomplished in an objective manner. Against this, the comparatively limited amount of empirical research that has focussed upon ISS formation in practice suggests that such activity is not straightforward, but instead is a complex, socially located activity (Davies, 1991; Walsham, 1993; Jones, 1995). Furthermore, an evaluation of literature concerned with strategy in organisations *per se* suggests that power is central to our understanding of the concept of strategy, but we find that this is not an area explicitly addressed in literature looking at ISS formation. We argue that this represents a gap in the literature, and that we can contribute to existing knowledge by exploring the role of power as a means of improving understanding of ISS formation in practice.

The development of ISS is regarded as an important issue to those concerned with information systems (IS) in organisational settings (Niederman et al, 1991; Badri, 1992; Brady et al, 1992; Galliers et all, 1992; Atkins, 1994; Reponen, 1998), and a wide range of methods have been developed to aid the process of ISS formation (Rockart, 1986; Earl, 1993; Sullivan, 1992; Ward & Griffiths, 1996; Fidler & Rogerson, 1996). Despite the apparent importance attached to ISS, and the proliferation of many methods to assist those engaged in ISS formation, the practice of ISS formation remains comparatively ill-understood (Waema & Walsham, 1990; Knights & Murray, 1994; Jones, 1995).

Concepts associated with a technical-economic rationality have tended to dominate ISS literature (Kling, 1989; Clemmons & Row, 1991). Key aspects of such a rationality are that people and organisations are focused upon maximising their respective utilities, be they economic or socio-psychological, and that something akin to an ideal market exists (Kumar et al, 1998). This view suggests that buyers and suppliers act in a market with limited appreciation of historical context, with interchangeability of suppliers, and relationships based largely upon price, some or all of which become the focus for ISS (Cunningham & Tynan, 1993). Some ISS literature considers alternative perspectives which accentuate the socio-political nature of ISS practice (Bloomfield & Coombs, 1992; Knights and Murray, 1994).

In developing such accounts, the concepts of strategy and power can be viewed as being closely linked (Knights & Morgan, 1990; Walsham, 1993). It will be argued in this thesis that ISS formation practice can be perceived as a socially constituted phenomenon, and that one way in which we can improve our understanding of this concept is through addressing the exercise of power. However, as will be seen, few studies on ISS formation have attempted to address the concept of power directly. Using theory based accounts of power, we have put forward a multi-dimensional conceptualisation of power (Hardy, 1994) as an aid to organisational analysis of ISS formation practice. Consequently, the focus of this work is not only a detailed investigation into ISS formation in practice, but also one in which we evaluate the way in which a multi-dimensional conceptualisation of power affects our understanding of ISS formation practice.

1.2. THE RESEARCH CONTEXT: ISS FORMATION IN THE POLICE SERVICE

There is a tendency within the literature associated with ISS formation, and indeed ISS in general, to concentrate upon private sector organisations. Willcocks (1994) highlights four reasons why more attention should be given to the public sector. Firstly, "the sheer size and rising trend in expenditure on information technology" (ibid. p.13), with £1,749 million being spent by the Department of Social Security on their operational ISS between 1982 and 1999 (ibid. p.13). Secondly, "the widespread, frequent perception of lack of value for money arising from these large expenditures" (ibid. p.14). This is not to say that the private sector are necessarily exemplars in this area, but can be seen as an acknowledgement that the public sector is prone to scrutiny regarding the value obtained from information technology (IT). Thirdly, acknowledging that somewhere in the region of 20% of UK IT expenditure is apparently wasted, "the mixed performance by government, policy makers, management and other stakeholders that [this figure] partially reflect[s]" (ibid. p.14). This latter issue is seen as a particularly important area, with there being particular weaknesses in relation to formation of ISS in public sector organisations (Willcocks, 1994). Finally, the centrality of information related technology to the management and delivery of public services, where, "the broad moves towards various forms of New Public Management may well be heavily dependent on the effective delivery and functioning of various forms of information-based technologies and networks" (ibid. p.14). Thus, the public sector deserves, and indeed requires much greater attention from IS researchers than has been the case to date. Indeed, in addition to the work mentioned above, a number of other authors have also highlighted the growing significance of strategy related to IS in many areas of the public sector (e.g.: Keen, 1994 - the NHS; Collingridge & Margetts; 1994 - the DSS; Westwood, 1994 - the Police).

Although a review of ISS literature indicated that the public sector in general was not very well represented, it would be a misnomer to view this sector as a unified entity - it is not. Within this notional grouping we can include: government agencies such as the Department of Social Security, offices of state such as The Scottish Office, bodies for the protection of national interests such as the Royal Air Force, quasi-public bodies such as hospitals (quasi because of the blurring of their status vis-à-vis funding), and service organisations such as the Police. While by no means a complete list, it does

indicate the wide range of responsibilities, reporting, and funding arrangements for institutions that are covered by the title 'public sector'.

The Police Service utilise computer systems widely, being dependent upon effective IS for the delivery of the service. Nonetheless, research looking at ISS specifically in the Police Service is extremely limited. While the usage of computer systems has developed relatively slowly in the Police Service (Ackroyd et al, 1992), from the 1980s onwards the Police Service has been under increasing pressure to demonstrate cost effectiveness and operational efficiency in all areas of activity (Taylor & Williams, 1992). To this end, the Audit Commission and Her Majesty's Chief Inspector of Constabulary (HMIC) have been at the forefront in encouraging improvements through their inspecting, monitoring, and reporting activities. For some senior Police Officers, ISS assumes a particular significance due to a perceived view that if the police are not judged by government to be successful in their use of IT, then a solution may be imposed upon them (from personal conversations with senior police officers). This is something senior Officers are keen to avoid, and hence ISS formation has come to be regarded as an increasingly important issue (Sillince & Mouakket, 1997).

The reasons for choosing to conduct research on ISS formation in the Police Service are as follows. Firstly, in 1993 the author knew that at National Level work was commencing on ISS in the Scottish Police Service, and then found out that several of the individual Police Forces were also engaged in developing ISS. Thus, this presented an opportunity to conduct research where several people in several organisational settings were, according to their own views, engaged in ISS formation.

Secondly, with the author having worked in the Police Service (although not in any of the Forces chosen for the case studies), he had in-depth pre-knowledge of the general domain and was able to negotiate excellent co-operation for the research study which would otherwise have been very difficult to obtain. This allowed detailed longitudinal case study research to be conducted.

Thirdly, the concept of strategy is often perceived to be associated with notions of the market, competitors, and profitability (Whittington, 1993), as the many techniques developed to assist in formulating ISS make clear (e.g. Ward & Griffith, 1996; Robson, 1997), and perhaps as a consequence comparatively little published work has addressed

ISS in public sector contexts. However, not only is the public-sector under-researched in relation to ISS, but for the Police Service information and information systems are central to their role, in that they rely upon effective systems on a 24 hour/365 day a year basis. Hence, ISS is perceived to be of importance to the Service both in terms of fulfilling operational duties, and in terms of spending upon information technology.

Finally, the Police Service is unusual in that its very existence arises from a societal need to be policed, and this raises particular expectations which govern not just purpose but also operation. What Police Officers do and the way they do it is laid out in numerous statutes. This is not to deny the discretion that officers have in carrying out their duties at a local level (Horton, 1996), but rather to highlight that at an institutional level, what the Police Service do and how they do it is by and large determined by bodies other than themselves. Therefore, the use of the language of strategy in relation to IS intimates practices associated with determining a future direction (Earl, 1999), which in view of the relationship with the other bodies discussed above makes the usage of such language in the Police Service an interesting area for investigation.

The Police Service therefore presented an opportunity to research ISS formation in a context that had not been explored. In addition, the author had specialist pre-knowledge which enabled the gaining of access and which aided the level of understanding in subsequent field studies. The research in the Police Service, has entailed case studies being undertaken of ISS formation within five Scottish Police Forces, and at a national level for the Scottish Police Service.

1.3. AN OVERVIEW OF RESEARCH METHODOLOGY

The perspective underpinning this study may be characterised as interpretive, and more particularly as an interpretive approach based upon critical hermeneutics (Myers, 1997). A central tenet of such a view is the belief that in the social world, of work based organisation in this instance, it is through the interaction of individuals that social reality for them is constructed and reconstructed as part of an ongoing dialectic (Berger & Luckmann, 1967). Furthermore, this is characterised by the belief that it is only through interpretation of social constructions that we can develop our understanding of what happens in institutional settings, and that this should be undertaken through an

ongoing dialectic between theory and analysis. Views about what happens in such settings exist in the meanings that people develop as they interact with one another and with the physical world, with such meaning being a consequence of context and time. While some meanings will be shared, others will vary from place to place and from person to person (Rubin & Rubin, 1995). In addition, this approach recognises that individuals will have an awareness of their environment, and that it will have an impact upon their actions (Aldrich, 1992). Thus within this perspective there is a concern to understand both what has occurred as well as the context, which means that we must enter the social arena to conduct our study.

A number of authors consider case studies to be a preferred means of investigating strategy formation practice (Pettigrew, 1990, 1992; Walsham,1995; Myers, 1997), being recognised as an appropriate and valid IS research method (Galliers, 1992; Cavaye, 1996; Doolin, 1996; Darke et al, 1998). We undertook longitudinal, multiple case studies (Yin, 1993; Cavaye, 1996), with the case studies having been developed with five Police Forces between 1994 and 1998. Data collection has involved a number of methods, principally: in-depth semi-structured interviews, informal conversation, participation, collection of documentation produced by the people involved, and collation and analysis of secondary materials produced outside of the direct areas of study.

Multiple cases in single sector studies such as this are recognised as being of considerable value in providing a research arena in which to address differences, or variability, in strategy formation (Pettigrew, 1985; Child & Smith, 1987). Thus, given the apparent homogeneity of the Police Service and of the politico-economic environment in which they operate, researching in such a domain enables us to concentrate upon social practice of ISS formation, drawing attention to similarities or variations therein.

1.4. THE RESEARCH QUESTION

This research was initially stimulated by a desire to make a contribution to knowledge by addressing the following question which had become apparent as a result of the author's own experience and through reading of literature in the area:

> Why is ISS formation apparently not straightforward given that there is ample prescriptive literature available to assist the process?

This led to the development of this particular research programme which has addressed these related questions:

> When people in an institution such as the Police Service say they are involved in ISS formation, what happens, and why?
>
> Does addressing the exercise of power explicitly, in this instance utilising a multi-dimensional theoretical conceptualisation, further our understanding of ISS formation?

From the above questions, the following sub-questions have been used to guide and structure the research:

1. What do we understand by the term ISS formation?
2. Why is there apparent disparity between how some literature suggests ISS formation should happen, and what other literature suggests does happen?
3. Why is power a valid concept through which to explore ISS?
4. How and why is ISS formed in the organisations studied?
5. What implications does this study of ISS formation have for theory?
6. What implications does this view of ISS formation have for practice?
7. What have we learned about the area of investigation, about the way we have investigated it, and about ourselves in order to abstract generic notions which may have applicability for the field of ISS?

1.5. STRUCTURE OF THESIS

Figure 1.1. illustrates an outline of the structure of this thesis, after which we discus the content of and rationale for each chapter.

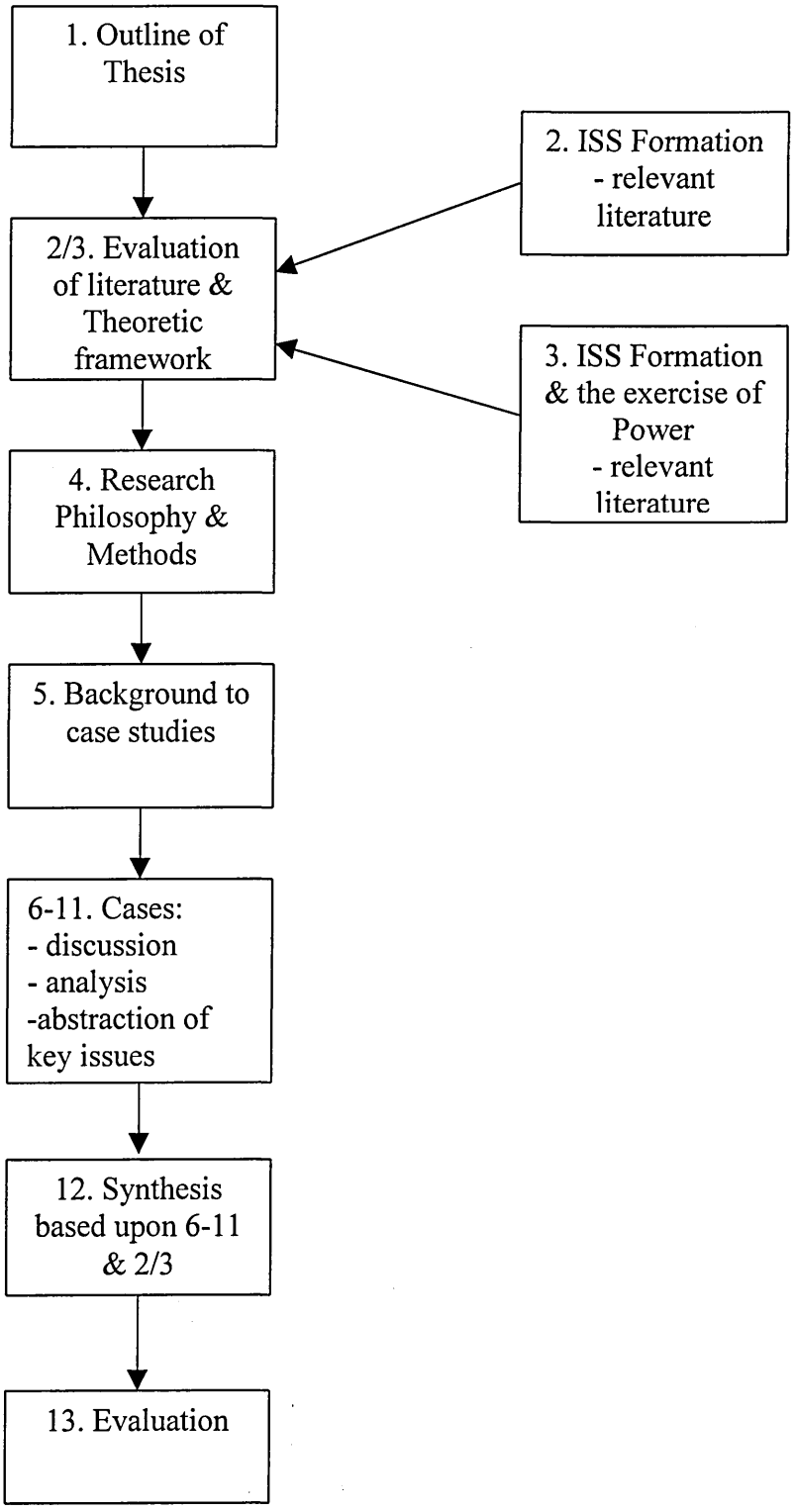

Figure 1.1. Outline chapter structure of the thesis

In Figure 1.1. we not only outline the structure of this thesis, but also indicate the ways in which earlier chapters contribute to later discussions. In our view, the thesis must be viewed as a whole, consisting of a progression from initial identification of a gap through to the contribution to knowledge.

1.5.1. CHAPTER 1

What - This chapter sets out the research focus and research questions that have guided the work undertaken, and provides an introduction to and overview of the following areas of the thesis: background to the research area, the reasons for doing this research, the methodological focus, the practical research work undertaken.

Why - The content of this chapter provides the reader with a clear understanding of what the thesis is about, what was done, why it was done, and how it was done. Finally, the reader is given a clear understanding of the structure and content of the remainder of the thesis.

1.5.2. CHAPTER 2

What - In this chapter we undertake a critical evaluation of theory relevant to the area of ISS formation, highlighting the key issues that have been identified, including problems and deficiencies in the field which pave the way for the work in this thesis. Specifically, this chapter considers the nature of IS and the nature of Organisation, the nature of ISS, and finally ISS formation. In particular, the work in this chapter highlights the need for in-depth analysis of ISS formation.

Why - There is considerable literature on ISS. The role of this evaluation of research literature is to clarify what knowledge exists, what gaps exist, and to justify the research as being an important area for exploration.

1.5.3. CHAPTER 3

What - This chapter builds upon the work in chapter two by highlighting the exercise of power in terms of ISS formation in an organisational context. A critical evaluation of literature looking at the exercise of power in relation to IS in organisational contexts is undertaken, and a case is made for the examination of ISS formation through focussing upon the exercise of power. Finally, a conceptual investigative framework that can assist our understanding of ISS formation is discussed.

Why - There is not much discussion on the exercise of power in ISS formation. By critically evaluating literature, the thesis establishes that there is indeed a case for exploration of the exercise of power in relation to ISS formation.

1.5.4. CHAPTER 4

What - This chapter discusses and justifies the philosophical position underpinning the research methodology, the research methods employed, and the means of analysis.

Why - It is essential to make clear the philosophy and methods underpinning the thesis, and to set out exactly what was done, how, and why in the practical research work. This establishes the credentials of the researcher and the validity of the data.

1.5.5. CHAPTER 5

What - The main focus of this chapter is to evaluate the context of the case studies. The role of information technology in the Police Service is examined, and an evaluation of issues allied to the concept of ISS in the Police Service is presented.

Why - To ensure that the reader is presented with a clear discussion of the context in which the research has been undertaken, which is pertinent to a consideration of ISS formation in the case studies.

1.5.6. CHAPTERS 6 TO 11

What - In these chapters the detail from the practical research work in the case studies is discussed. In this discussion we abstract issues from our analysis of ISS formation in each of the cases.

Why - To understand ISS formation in practice.

1.5.7. CHAPTER 12

What - In this chapter the analytic findings from our analysis of the case studies are synthesised. From this we develop theoretic understanding of ISS formation by developing a model based upon our analytic work.

Why - To synthesise the themes which have been extracted from the analysis of practical research work, and to discuss them in terms of issues which emerged from our evaluation of literature. To demonstrate the validity of our analytic propositions to theory.

1.5.8. CHAPTER 13

What - This chapter presents an evaluation of the research undertaken and a conclusion. Firstly, an evaluation of the findings from the research case studies is presented in relation to ISS formation. Secondly, an evaluation of the research approach and methods is presented. Thirdly, an evaluation of the role and development of the researcher during the process of researcher is presented. Finally, it sets out some directions for future work that follows on from the findings of this research.

Why - To demonstrate the learning that has occurred in conducting the research based upon critical reflection.

1.6. SUMMARY

This chapter has set out an overview of the research issue, research context, and research method for this thesis. In the next chapter we evaluate literature relevant to ISS formation, highlighting a gap in the literature to which our work contributes.

CHAPTER TWO - INFORMATION SYSTEM STRATEGY FORMATION

2.1. INTRODUCTION.

This chapter evaluates literature that is pertinent to our understanding of the concept of information system strategy (ISS) formation. It highlights a disparity between a rational perspective of ISS formation and a number of empirical studies which contradict this dominant view. This leads to the argument that it is necessary to address this disparity through research which investigates the micro-politics of ISS formation.

The structure of the chapter is as follows: firstly it evaluates literature concerning the nature of IS and organisation, arguing that practice associated with IS in organisational settings is inherently social, and can usefully be considered in terms of political activity. Secondly, it evaluates literature on ISS, noting that this is a relatively young field of study, and one that borrows heavily from the area of business strategy. It is argued that while much is written about ISS, how ISS actually comes about - that is, ISS formation - is not well understood. Thirdly, it evaluates ISS formation specifically, arguing that there is a disparity between a majority of literature which displays ISS formation as a rational process, and some research studies of practice which conflict with the rationalist perspective. Finally, drawing the above together, the chapter closes with the argument that research is required that is sensitive to the political phenomena that pervade practice associated with ISS formation.

2.2. ORGANISATIONS: THE CONTEXT FOR ISS FORMATION

A traditional and what has been termed a functionalist perspective (Burrell & Morgan, 1979) considers the notion of an organisation as an objective entity, something that exists in its own right. This suggests that once established, an organisation tends to assume "an identity of its own which makes it independent of the people who have

founded it or of those who constitute its membership" (Blau, 1974, p.54). This can be regarded as a domain assumption that continues to dominate research in organisational contexts (Burrell & Morgan, 1979; Reed, 1985; Knights & Wilmott, 1999). Here, organisations are seen as being ontologically distinct, that is, having an existence of their own with clearly identifiable boundaries, and where the organisation is ascribed the capacity for deliberation and action (Morgan, 1986).

There are other perspectives however, and of particular significance to us are those that consider the concept of organisation in a subjective sense. The term organisation can be considered as an embodiment of social reality, reproduced through a network of self-constructed subjective meanings which become institutionalised over time (Silverman, 1970). Such a view of organisation acknowledges a socially constructed dimension, which functionalist views referred to above, do not address. By socially constructed (Berger & Luckmann, 1967) we mean the way in which people construct knowledge of the social realities that they are engaged in, which can be considered in the form of an ongoing dialectic between people and the world they inhabit (ibid.). Such an ongoing dialectic can be thought of in terms of three aspects of externalisation, objectivation, and internalisation. Here,

> "society and each part of it are simultaneously characterised by these three moments", and where an individual "simultaneously externalises his own being into the social world and internalises it as an objective reality. In other words, to be in society is to participate in its dialectic" (Berger & Luckmann, 1967, p.149)

Such a view challenges the assumption that there is one external reality within which organisations are located, and with which people interact. Typically, a functionalist view regards organisations as predominantly market driven entities which have to adapt to environmental pressures, where organisations are "islands in an environmental stream of change" (Scarborough, 1998, p.21), with people assessing and responding to collectively understood pressures. Instead, in our view the notion of organisation will be perceived differently by various people, and similarly, so-called environmental activity will also vary depending upon the mental constructs that people, either individually or collectively, develop. In such a perspective, we view people as knowledgeable and proactive beings, who shape their organisational setting though their interactions with other people. The complex social processes through which organisational arrangements are constituted and the reproduction of organisation structures is seen to be directly and

inextricably tied to the social interactions taking place between participants (Giddens, 1976).

In our view, we think about the concept of organisation as social practice, where,

> "organisations are viewed as administrative mechanisms containing authoritative and allocative resources through which collective action can be coordinated and mobilised in support of productive activity which transforms the environmental conditions in which it is undertaken."(Reed, 1992, p.114).

Such a view highlights a number of aspects. Firstly, the recognition of action through mechanisms associated with the manipulation of resources highlights both social aspects as well as more physical elements - in the form of resources - associated with practice in organisational settings. Secondly, such a perspective acknowledges that political activities are embodied within organisational practice, and it is argued that that these will be geared towards desires to gain access to the authoritative mechanisms that form the basis for organisation (ibid.). Therefore, we contend that addressing political issues is important to our understanding of the activities in organisational settings (Mintzberg, 1983; Clegg, 1989; Eden, 1992.).

This highlights that the concept of organisation can be understood in terms of perceptions of people, and these perceptions may vary between individuals, across groups, and over time. Furthermore, for those actually working in organisational settings, what they do, how they operate, and the meanings they attach to what happens are all part of cultural and political practice inherent in the concept of organisation, something which they may not explicitly reflect upon but which they are nonetheless implicitly a part of.

This view of organisation draws attention to differences in what people seek to achieve, and to diversity in the ways in which practice occurs. This conception of organisation indicates that we must be aware of elements such as diversity in approach that people take, differences in perspective and meaning attribution, multiple coalitions with potentially conflicting ambitions, and shifts in the nature and bases of power. Such elements are at the heart of what Checkland (1981) means when considering organisation as human activity systems, in that, organisations have no particular state or form which can be identified. Instead, in our view the notion of organisation is ever changing, and only has meaning through the perceptions of the people with some

interest therein. As Jayaratna (1994) observes, it is impossible for someone to make a complete study of the notion of an organisation, because what an organisation *is*, and how said organisation is perceived, will vary from person to person, and from day to day - the notion of organisation is a consequence of socially constructed interpretations. When we use the term organisation it is to such a concept that we refer, and from this we can now move on to consider the nature of IS.

2.3. INFORMATION SYSTEMS: THE FOCUS OF ISS FORMATION

Technological thinking has often dominated IS related research and practice, lacking an appreciation of either social, or the generally unpredictable nature of IS in organisational settings (Angell & Straub, 1993). In our view information systems are not just technology. Long before computer technology was available, information systems were a part of human activity, where data became information in human consciousness (Boland, 1985) through the utilisation of technological artefacts such as printed and written materials, or other apparatus. The adoption of computer based technologies into information systems has represented a technological evolution of a basic human activity (Checkland, 1988; Wilson, 1990; Land, 1992), and we can think of information systems as entailing purposeful human activity making use of information technology artefacts (Checkland, 1981; Boland, 1987; Jayaratna, 1994). Thus, when we think of practice associated with computer based information systems (IS) in organisational settings we must address both technical and social phenomena.

Further to this, computer related technologies have elements of subjectivity about them, in that their significance within any setting can be perceived as being based upon the meanings attributed to them (Checkland and Holwell, 1998), through "socially constructed definitions of their value and utility" (Knights & Murray, 1994, p.250). From our perspective the concept of IS embodies social practice, and is given meaning through socially constructed views. Such a view means that the application of a seemingly objective entity such as a computer will be subject to a wide variety of socially formed interpretations. We note therefore that discussions related to such IS in organisational settings may not be consistent in meaning amongst participants given that the significance of any such system will be based upon variance in individual, or collective interpretation. The increased recognition of the social dimensions of IS has

led a number of authors to call for more empirical investigation of IS which explicitly addresses these social dimensions (Boland, 1985; Davies, 1991; Jayaratna, 1994; Walsham, 1995; Myers, 1997), and which our research is a response to.

2.4. INFORMATION SYSTEMS STRATEGY FORMATION

This section firstly considers general business strategy formation literature to identify schools of thinking which are relevant to ISS, before moving on to evaluate literature on ISS formation specifically. In discussing strategy, we find that there are numerous definitions within the literature, although broadly most tend to reflect the same underlying concerns; namely, that that strategy is an activity which affects all parts of an organisation, which examines the scope of an organisation's activities, and which is concerned with relationships between organisation settings and environmental factors (Asch & Bowman, 1989; Whittington, 1993; Lynch, 1998). We will now move on to consider differing views regarding the nature of strategy and how strategy comes about.

2.4.1 DIFFERING VIEWS ABOUT STRATEGY & STRATEGY FORMATION

Much of the business and management literature published about strategy, has been criticised as being unrepresentative of practice (Mintzberg, 1978; Chaffee, 1985; Whittington, 1993; Lynch, 1998). This is because traditionally, strategy has been treated as something "explicit, developed consciously and purposefully, and made in advance of the specific decision to which it applies" (Mintzberg, 1978, p.935), or as a clear process . Such views, which we term traditional, exhibit the notion of intended strategy which involves deliberate planning activities in advance of implementation, which in turn leads to intended outcomes.

Mintzberg (1978) draws a distinction between two schools of thought on strategy formation: the traditional view is termed deliberate, and the other emergent. Emergent strategy is something that can only be determined by looking for "a pattern in a stream of decisions" (Mintzberg, 1978, p.935). This is strategy in retrospect, that is, it is

perceived to emerge over time, in contrast to being the result of something that has been rationally planned before being implemented.

This distinction is important for a number of reasons: firstly, it challenges the traditional view of rationally planned strategy by introducing the notion that strategy formation also has an emergent quality. For example, it has been argued that in practice there is neither purely deliberate nor purely emergent strategy, but that strategy formation inhabits a continuum between these two extreme forms (Mintzberg & Waters, 1985). Secondly, it highlights the thought that there are multiple influences upon strategy formation as a process that are outside of conscious thought or deliberate action, in effect saying that the reality of strategy formation is highly complex. Finally, it is claimed that in fact researchers know very little about the practice of strategy formation due to the limited volume of empirical work (Mintzberg, 1978; Eden, 1992; Johnson, 1997).

Pettigrew (1977) argues that the way in which strategy comes about can be considered as, "a flow of events, values and actions running though a context" (p.79). This suggests that contextual issues may be important in helping us to understand the way in which ISS comes about, and also that political considerations may be an important means through which the issue of strategy formation may be investigated. This highlighting of contextual and political issues in relation to strategy formation contrasts with the more traditional views referred to above.

Difference in perspective about how strategy comes about are not new however. While some argue that strategy is a rational activity which could be planned via a series of stages (Ansoff, 1965), others suggest that strategy development is in practice somewhat haphazard and ad-hoc in nature (Lindblom; 1959), and that political and social factors are influential in the strategy development process (Allison, 1971; Datta; 1980).

Several schools of thinking about strategy formation have been identified (Chaffee, 1985; Kay, 1993; Whittington, 1993). We can summarise these views in terms of four schools of thinking about strategy formation (Whittington, 1993), which can be differentiated along two axes, one which we have labeled Intention and the other we have labeled Perception of Process. We illustrate these schools of thinking in Figure 2.1. below.

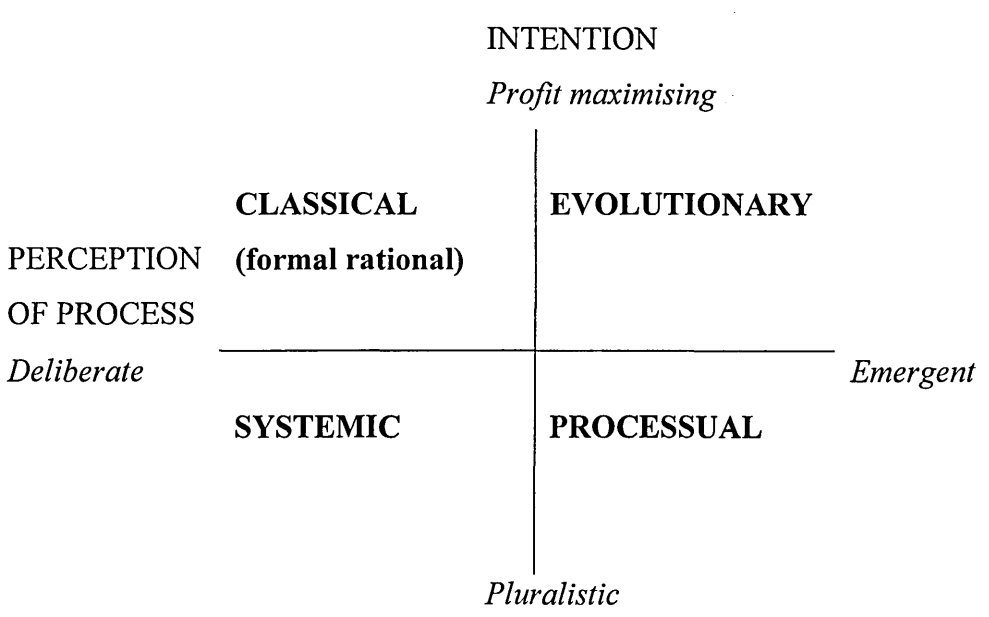

Figure 2.1. A Classification of Four Perspectives on Strategy Formation (Adapted from Whittington, 1993, p.3)

The vertical axis indicates the degree to which strategy efforts are focussed upon either profit-maximising, or whether there are more pluralistic intentions which address other foci in addition to or instead of profit maximising, for example, delivery of a public service, provision of an enhanced work environment, or survival. The horizontal axis addresses perceptions of process, and differentiates between planned, deliberate processes at one end of the continuum through to more emergent, or serendipitous approaches at the other end.

The Classical perspective in the upper left-hand quadrant is the formal rational view. The Evolutionary and the Processual perspectives categorise strategy formation as being based upon more emergent processes, but differ in their intentions for strategy formation. An Evolutionary perspective is seen as being more concerned with profit maximisation through processes of natural selection, having little faith in the ability of managers to plan rationally. The work of Henderson (1989) and Williamson (1991) typifies the approach of the evolutionists, arguing that for most firms strategy is a distraction, as only those with true market power can hope to choose their direction. For the remainder, it is a question of fighting to survive through ever greater efficiency in

the quest for profits. For the evolutionist, it is the environment which will decide who survives, not the managers.

A Processual perspective intimates strategy formation that is oriented to additional, or alternative, outcomes. The work of both Mintzberg (1978) and Pettigrew (1977), referred to above, is characteristic of the processual viewpoint, where both are interested in the process of strategy that exists within complex situations. However, while they do address the political nature of strategy, both Mintzberg and Pettigrew can be criticised for accepting the classical assumption that strategy "exists to solve problems vis-a-vis the organisation and its environment" (Knights & Morgan, 1991, p.267). Instead, we should remain aware to the possibility that "strategy does not simply respond to pre-existing problems", but that in the process of formation, "strategy is actively involved in the constitution, or redefinition, of problems in advance of offering solutions for them" (ibid., p. 267). Hence, strategy according to this view need not be seen as in someway representing a solution to a problem that is already evident in organisational settings, but rather that the concept of strategy can be re-thought in terms of a social practice that involves forming, or coming to know of the problem(s), as well as addressing said problem(s). This leads us to a more sociologically sympathetic view.

Finally, within a Systemic perspective,

> "a central tenet ... is that decision makers are not simply detached calculating individuals interacting in purely economic transactions, but people rooted in deeply interwoven systems" (Whittington, 1993, p.28).

Here, strategy formation is perceived as encompassing a sense of deliberation to strategy development in addition to an emergent aspect, but will also be concerned with a variety of intentions that go beyond one solely of profit maximisation (Whittington, 1993). In particular, this dimension acknowledges socio-political dimensions to strategy formation, and requires modes of enquiry that are sensitive to social and political aspects (ibid.).

However, we consider that the terminology we have used to label the axes requires further discussion in the light of our challenges to Whittington's (1993) classificatory framework. The term Process was originally used to label the horizontal axis, and in our view this intimates a concern with how people see an observable process, rather than how people perceive of any notional process from amongst a range of possibilities. We

prefer the term Perception of Process, which is in our view all that we can hope to gauge from people. The use of the term Outcomes which Whittington uses to label the vertical axis intimates that there is a clearly understood outcome, although we can by no means be sure that this will be the case. Instead, we prefer the term Intention, by which we mean endeavouring to gauge what the intentions are of those thinking about strategy.

One problem with such two-by-two matrices as displayed in Figure 2.1., is the danger of over-simplifying concepts (Collins, 1998). However, this is less problematic if we do not imply from Figure 2.1. that this is how things *are*, but rather that here is one way of thinking about strategy. With this in mind we note that Whittington (1993) is not entirely clear about the relationship between the systemic perspective and the other three views. From Figure 2.1. it would be relatively easy to infer that both classical and systemic perspectives consider that strategy comes about in a deliberate mode, whilst the other two schools are differentiated by a view of strategy as emergent. This is simplistic, and in our view misleading. While much of the literature in the classical view does indeed view strategy as something that is planned in a deliberate fashion (Scarborough, 1998), this is not the claim of a systemic perspective. Rather, the basis of the view of the systemic school of thinking is that what happens with regard to strategy is a consequence of the particular sociological context, and that strategy is not necessarily purely emergent, but equally, nor is it necessarily wholly planned (Whittington, 1993). The main contention is that a sociologically sensitive approach is required in acknowledgement of the view that, "strategy reflects the particular social systems in which strategists participate, defining for them the interests in which they act and the rules by which they can survive" (ibid., p.5).

One further problem is that the use of the term Systemic is not explained sufficiently by Whittington (1993). While the reference to thinking about strategy formation in terms of systems is made clear, it is not made clear whether the term Systemic is being used to differentiate this view of how we think about what happens in practice from association with the term System*atic* (Checkland, 1981; Jayaratna, 1994). It appears to us that the term systemic is being used by Whittington to infer that we should understand strategy formation in terms of systems in an ontological sense, "as *it* exists in its environment" (Thomsett, 1980, p. 8). While we agree with the sentiment expressed within the Systemic perspective that a more sociologically sensitive view of strategy formation is required, we need to consider the terminology usage. Whittington (1993) argues that to

be within the Systemic perspective is to be sociologically sensitive to the political and cultural systems of the strategy context. We argue that in addition to this, in our view the term Systemic can be used in a different sense (Jayaratna, 1994), to imply the use of the term in an epistemological sense rather than an ontological sense. This view infers that rather than thinking that there is a strategy formation process waiting to be identified, in an epistemological sense, what may be seen as constituting strategy formation will depend upon the perspectives of those involved, and it may well be that another person will perceive strategy formation in a different way. Thus, we can conceive of many systems in relation to strategy formation, which will vary in relation to the mental constructs (Jayaratna, 1994) of those involved. If we accept this alternative view, then we are alerted to the possibility that there will be various perceptions of strategy formation amongst the people involved in the process of ISS formation.

Thus in evaluating the field of strategy formation, traditional rational planning approaches to strategy formation are considered to be unrepresentative of practice (Datta, 1980; Quinn, 1980; Mintzberg & Waters, 1985; Pettigrew, 1985a; Pettigrew & Whipp, 1991). We have acknowledged that there are a variety of perspectives that we can take of strategy formation, and we note the view that the Systemic perspective offers an alternative means of thinking about strategy formation that overcomes the weaknesses that we have identified in the other views. That said, when we turn to the literature on ISS formation, we find that the majority of this literature reflects a Classical perspective.

2.4.2. CLASSICAL PERSPECTIVES OF ISS FORMATION

ISS literature shares much in common with the business strategy literature; not only are there numerous definitions (Baets, 1992), but there is also diversity in perspectives about how ISS comes about (Walsham, 1993; Jones, 1995; Scarborough, 1998).

First we must address what we mean by ISS. Lederer and Sethi (1992) argue that ISS comprises two strands; one is concerned with identifying high-impact applications, while the other focuses upon a process of "identifying a portfolio of computer based applications to assist an organisation in executing its current business plans" (p. 70).

These authors go on to claim that ISS involves an organisation selecting a methodology, and undertaking a major study involving teams of staff. Furthermore Lederer and Sethi (1992) identify eighteen reasons why ISS often fails, none of which explicitly mention social or political problems. The problems they identify concern getting resources, implementing the methodology, and getting leadership - the reasons *why* these factors become problematic are not explored in any depth. This view is one that can be categorised within a classical perspective, being one of many such views we see reflected in ISS formation literature (e.g. Miller, 1988; Wiseman, 1988; Atkins, 1994; Prince, 1994).

Much of the literature that addresses ISS formation exhibits characteristics of the Classical perspective, where the authors present a view of ISS formation as a distinct, deliberate process, with profit maximisation as the intention of those involved. A number of authors do present ISS formation in systematic terms, with ISS practice being presented as a process that consists of distinct steps, with formulation being differentiated from a separate process termed implementation (e.g. Earl, 1989; Andreu et al, 1992; Ward & Griffiths, 1996; Fidler & Rogerson, 1996; Robson, 1997). As we have argued, we believe this is an unhelpful distinction, intimating as it does that there is a distinct stage when ISS is formulated followed by a further distinct, and separate stage when strategy is implemented. There is in this an inherent presumption of sequence, and furthermore the concept of formulation carries with it connotations of a *systematic*, rational approach. When we talk of ISS formation we are deliberately distancing ourselves from the terms formulation and implementation. We use the term formation to refer to a range of practice through which we see the development of ISS, potentially in relation to a range of social phenomena and not just as a natural organisational activity (Knights & Morgan, 1991; Jones, 1995), a view that is more attuned to a systemic perspective of ISS formation. Works demonstrating a classical perspective often focus upon producing a distinct output, for example: a focus upon the production of an ISS plan (Premkumar & King, 1992; Flynn & Goleniewska, 1993); the delivery of value to the business following integration with the business strategy (Brown, 1994); the provision of better information with a view to enhancing business competitiveness (Fray, 1993); the delivery of applications (Moynihan, 1990).

We note that numerous tools have been proposed to enable ISS to be formulated. Examples of such tools and techniques include: value chain analysis (Porter & Millar,

1985); strategic opportunities framework (Benjamin et al, 1984); strategic options generator (Wiseman, 1988); opportunities matrix (Kettinger et al, 1995); strategic information system planning framework (Ward & Griffiths, 1996). Some have bundled many methods together into a toolkit approach (e.g. Hickey, 1993; Robson, 1997; Fidler & Rogerson, 1996).

An example of this proliferation of tools for ISS formation is the work of Ward and Griffiths (1996) who argue that, "..it should now be clear that information system strategies must be developed within the context of the wider corporate and business strategic planning process. In this way the investment in information systems and technology throughout an organisation can be directed towards the achievement of business objectives and goals." (Ward & Griffiths, 1996, p.47). The objective of ISS formation as they see it lies in 'gaining competitive advantage' or 'repel[ling] competitive threat' (ibid., p.47). These authors present a view of ISS formation which is outcome oriented, and which consists of a series of linear steps, which they set out in the form of a strategic information systems planning framework (ibid.). Ward and Griffiths (1996) claim that their framework is essential for the development of ISS, and intimate that by following their framework an implementable ISS will be developed. The problem we identify in such work is that the authors spend no time considering *how* ISS formation actually comes about in organisations. Rather, it is assumed that formal planning equates to ISS formation (see also for example: Andreu et al, 1992; Hickey, 1994). Furthermore, there is a clear assumption that there *is* a formal strategy process, that is in an ontological sense, but do not question different conceptions that may exist within organisational settings of either ISS or of activity associated with formation. This represents a limited view of ISS formation, and such views do not offer people the opportunity to *think* about the concept of ISS formation - instead they are presented with a *what to do* recipe.

We are critical of the limited perspective of these classical views of ISS formation as a formal, rational, planning activity (Scott-Morton, 1988; Waema & Walsham, 1990; Galliers, 1991; Walsham, 1993; Knights & Murray, 1994). There are a range of noted assumptions underpinning this perspective of ISS such as: that social relations are co-operative, that resources are available as required, that objectives are known, that people will be able to develop necessary aspects strategy in an objective manner, that there is a clear appreciation and understanding of cause-effect relationships, and that there is

enough information to enable the required activities to operate (Kling, 1987, Waema & Walsham, 1990). Such assumptions inhabit a perspective based upon realism, where the social world is seen as constituting hard, tangible and relatively immutable structures that are perceived to exist, with the social world viewed as being independent of any one individual's appreciation of it (Burrell & Morgan, 1979; Pfeffer, 1981; Hirschheim & Klein, 1989). One consequence is said to be that such a view tends to focus upon information technology as a factor that determines organisational outcome (Coombs et al, 1992). This is to the detriment of focussing upon the social practices surrounding the development and application of such technology.

Galliers (1991) cautions against persisting with an overly optimistic, formal and rational model of strategy formation, suggesting that different approaches are needed which better reflect the ways in which ISS may come about (Galliers et al, 1994). This echoes Kling (1987) who argues that social context and historical influences are either ignored totally, or are expressed in a few simple formal relationships in studies inhabiting the Classical perspective. Much of the ISS literature is solution oriented (Knights and Murray, 1994), and takes too limited a perspective in seeking to address the complexities surrounding ISS, in particular the need to consider power as a key influence in relation to ISS (Bloomfield & Coombs, 1992; Walsham, 1993; Sillince & Mouakket, 1997). We therefore agree with the view that research into ISS is required from perspectives that, "recognise the importance of behavioural contexts, such as the existence of coalitions and multiple goal structures, political differences between participants and negotiation in conflict situations" (Waema & Walsham, 1990, p.30).

Our argument is that a considerable amount of the literature on ISS formation presents a view which is very limited. While some authors have considered ISS formation as more emergent than planned (e.g.: Hopper, 1990; Ciborra, 1994), this has done little to break the mould of the dominant formal-rational approach within ISS research in general. ISS is persistently articulated as a discrete process in an objective sense, which proceeds in a planned, linear manner. However, critiquing ISS formation literature is only the first step. The problem with such literature stems from what they do not say, and from what they do not include or seek to deal with in ISS formation in addition to what they do say, which leads us to explore alternative perspectives.

2.4.3. EXPLORING ALTERNATIVE PERSPECTIVES OF ISS FORMATION

The perspective that a researcher has of a situation is a consequence of the researcher's views on ontology and epistemology. By this we mean their assumptions about the essence of the phenomena to be investigated, the nature of the world, and assumptions about the grounds of knowledge, how we know what we know about that world. We consider perspective to be something that is innate to the individual, and that it is only through a process of reflection that researchers can begin to understand their own approach to investigation. However, the point of this is that the view taken here is that the perspective we adopt in research is a result of considered thought regarding the nature of what is being attempted, the nature of the domain, and appropriate means of investigation. In our view it is not a result of merely picking a perspective - a label - and making the resulting account 'fit' with practice (Tsoukas, 1994).

Therefore, in thinking about reasons behind the predominance of a formal-rational view of ISS formation, it is necessary to consider the stance of the researcher. This does not necessarily mean that a researcher, or group of researchers will adopt a particular view of ISS formation because it happens to suit their purpose. Rather, it implies that a particular view of ISS formation will be articulated as a result of the beliefs and assumptions that are held about the domain under investigation. In essence, such a view of ISS formation will be inexorably bound up with the researcher's beliefs about the nature of the world that they are investigating and the grounds of their knowledge of that world. That many people articulate a Classical perspective of ISS formation is a reflection of their understanding of the nature of ISS formation in the organisational setting.

However, the point is not that views of ISS formation that exhibit a Classical perspective are bad, and that we should therefore adopt another approach. Rather, we contend that such a perspective does not adequately deal with the social complexity that we have noted constitutes organisational settings, of which ISS formation activities are part.

In looking at the ISS literature, there are comparatively few authors who have reported upon research in the area of ISS formation that develop alternative perspectives to the Classical viewpoint. In this section we consider several empirically based contributions that have sought to investigate perspectives other than the Classical view.

In defining ISS, we see alternative perspectives being explored by some authors, although most agree with the ethos that ISS is concerned with a process of deciding what to do with IS in furtherance of the aims of the organisational members as a whole (Wilson, 1989; Baets, 1992). However, Reponen (1998) contends that ISS is "something which is essentially a planning process in the minds of the decision makers, users and developers of the system. It is supported by written reports and plans, but they are of secondary importance" (p. 137). This suggests that ISS may not then be a formal, identifiable process *per se*, but instead indicates a social element, and although not discussed by Reponen, as something that is socially constructed, a view supported by others (Knights & Murray, 1994; Scarborough, 1998). We therefore begin to see that there are alternatives views concerning the nature of ISS, and find that these view extend to differences in thinking about ISS formation.

Davies (1991) highlights the importance of social dimensions through which organisation, as a collective social activity, can be explored in relation to ISS. Davies reflects upon political activity as a key facet of the social complexity of organisation, an area that much ISS related research has failed to acknowledge. In particular, the concepts of power, context, and time, are noted as factors of importance in seeking to make sense of what occurs with regard to ISS. Davies (ibid.) argues that an interpretive approach is especially useful as a basis for enhancing understanding of ISS by giving attention to facets of organisation that previous research have rarely acknowledged. However, one weakness in Davies' work is that the issues of power, context, and time are not explored in any depth.

A further weakness is that Davies (1991) does not discuss her conceptualisation of ISS. On the one hand Davies' use of language about ISS suggests that her perspective can be classified as a Classical view, for example when, "checking for a logical flow through the necessary steps required to *carry out the strategy*" (1991, p.156), and that, "...the army needs to *allow its strategy to be implemented*" (p.160). On the other hand though, is her espousal of a view of life in organisational contexts as socially constructed, where

she is concerned to address both the micro and the macro aspects of the socio-political nature of organisational life. Such views would seem at face value to contradict one another, however, it may be that Davies is acknowledging a certain amount of formality to ISS while at the same time arguing that the strategy is embedded in the deeply interwoven social systems to which Whittington (1993) refers.

In a similar vein, Waema and Walsham (1990) discuss the impact of social/political power behaviour which they suggest forms part of ISS formation. The outcome of their work, is to highlight the social complexity of IS related activities, and amongst these, of ISS formation. They argue that power is implicit in ISS formation, noting a number of manifestations of political behaviour, for example: IS as sources of power for the Chief executive, power oriented behaviour of groups, changes in power distribution (pp.37-38). In this work however, the authors do not adequately explain either their own conception, or other theoretical views of power, something which we regard as a weakness.

An empirically based assessment of ISS in organisations is provided by Walsham (1993), who utilises an interpretive perspective that acknowledges the social complexity of organisation. Mintzberg's (1978) view of strategy formation as something that emerges from a pattern in a stream of decisions is accepted by Walsham (1993) who argues that ISS formation may well incorporate a sense of deliberate planning in addition to an emergent quality. Walsham argues that,

> "information systems in their organisational context have holographic properties, in that their development and use could be taken to involve all aspects of human life"(1993, p.7),

drawing attention to the social dimensions surrounding ISS, and hence the complexity of the notion of ISS as an organisational activity. Walsham (1993) illustrates a move beyond the Classical perspective on ISS, with ISS formation "viewed as a process of continuous discourse" (Walsham, 1993, p.157), where communicants both provide, and take meaning as part of an ongoing ISS process. We are given some indication of Walsham's perspective from this; that is, to highlight the process of discourse is indicative of a view that is sensitive to the socially constructed nature of peoples activity in organisational settings. We see here the importance of language, vocabulary, and degrees of participation, which are a means of contributing towards an enhanced understanding of the nature of ISS formation. We also note the importance of social

processes whereby ISS formation can be conceptualised as "involving a social process of communication, learning, and negotiation both within and between individuals and stakeholder groups" (Walsham, 1993, p.236).

One further point from Walsham's (1993) work is important to us here, and that is the role of power that is referred to in his discussion of ISS. Power relations between individuals are viewed as being closely tied to the continuous discourse which is central to the formation of ISS (Walsham, 1993). Walsham notes that,

> "the main messages are that power and its use in political activity pervade all action and discourse in organisations, that the exercise of power is a continuous process that has subtle local properties, and that local actions are linked in a complex way to more general networks and institutional frameworks" (1993, p.40).

Although the role of power is again highlighted in relation to ISS formation, Walsham does not explore the concept in any depth.

The concept of power in relation to ISS is also discussed by Knights and Murray (1994) in their empirical study of I.T. developments in the U.K. financial services industry. They argue that one of the main problems with Classical views of ISS is the generally unacknowledged political nature of such activity, with power relations being viewed as a central ingredient of political activity. At the heart of this is their view that,

> "power might be seen to infuse all organisational relationships such that rather than being an exception or aberration from the norm, political activity is *the* focal process through which organisations are sustained, reproduced or transformed" (Knights & Murray, 1994, p.38, original emphasis).

Knights and Murray are unequivocal in their demand that more research into the social and political dimensions of ISS in organisational life is required, and that in particular we must address the central issue of power relations, through and within which so much of organisational activity can be considered to be enacted (Pfeffer, 1981; Clegg, 1989). They are equally adamant that the notion of IS in an organisational setting that is perceived to be objective and rational is a redundant notion, given the socially constructed nature of organisational settings, where politics is considered to be "the motor of organisational life" (Knights & Murray, 1994, p.245). From such a standpoint it is the socially constructed meanings attributed to IS, and to ISS that define the significance of these concepts for those involved.

In a study of ISS formation, Jones (1995) utilises an in-depth case study method to research in a District Health Authority. Jones' view of ISS is very similar to that of Walsham as discussed above, where the concept of ISS formation can be considered to encompass elements of both emergence and planning, but where the nature of ISS formation can only be understood in relation to "the broader social phenomena" (Jones, 1995, p.121) within and through which organisational activities are embedded. In an effort to understand and inform the social phenomena associated with ISS formation, Jones argues that an analysis that addresses four concepts of learning at four levels is appropriate: namely, "of strategic resources, of the strategy process, of the discourse of strategy and of broader social discourse" (ibid. p.119). While Jones is keen to point out that these levels of analysis do not form part of a "unified hierarchy of strategic action" (p.121), they do he argues, "offer particular readings of the strategy process, based on sometimes quite different assumptions about the nature of organisation and of social activity. They may be seen as levels however in the sense that their focus is progressively wider, from the internal, formal processes of an organisation to the societal context within which it operates" (p.121). The findings of this study do however highlight that ISS formation can be viewed as being embedded within the wider social discourses that take place as part of organisational life (Knights & Morgan, 1991; Jones, 1995). Thus, in considering ISS formation in such terms, it is suggested that it is this concept of discourse "that shapes the way in which organisational members see themselves and their world and also constitutes the problems it claims to solve" (Jones, 1995, p.120). Despite this use of the notion of strategic discourse, Jones remains wedded to an ontological view of strategy, despite the epistemological connotations that the notion of strategic discourse implies. That is, it seems to us that the very notion of strategic discourse intimates that people will participate and perceive strategy in different ways as a consequence of their participation in parts of this discourse. Therefore, Jones talks continually of *the* strategy process (1995) without questioning the assumption that everyone identifies with a single process.

In addition, Jones (1995) has taken his four levels of analysis from authors with quite markedly different perspectives of the nature of both *strategy* and of *organisation*, a point which Jones does acknowledge but does not justify. The four approaches that Jones adopts exhibit characteristics from all four of the views of strategy in Whittington's (1993) classification which we discussed previously. The bringing together of levels of analysis which embody such differences, that is, views which

would seem to be divergent in terms of the ways of thinking about strategy formation is not explained nor justified clearly by Jones (1995). While the levels of analysis presented do represent developments in thinking about ISS in so far as they move beyond a Classical view, it would have been helpful to have a more detailed discussion of the theoretic bases of the work.

Despite this, Jones makes some interesting points, in particular that in considering ISS formation we should not consider either the issue of resources, or process, or politics, or the social discourse of strategy in an isolated manner, but should see them all as interconnected. He argues that, "the way in which strategy facilitates and legitimates the exercise of power was very much in evidence", and that, "information systems strategy was central to [the] changes in power relationships" (p. 138). The point being made here is that the link between ISS and way in which power is exercised is again evident, if in this instance not explored. However, having made such observations, and highlighted the role of power in the case a number of times, Jones does not address the concept, or conceptualisations of power in any depth, concentrating instead upon the concept of learning. Thus, power is raised as an issue in respect of ISS formation, but exploration of that issue is left for others to take up.

Auer and Reponen (1997) adopt an action research approach to investigate ISS formation in a food-agro/chemicals conglomerate. They note that ISS formation has both predictable and unpredictable elements, but that what happens must be seen in the light of the organisational setting. Whilst they do not address the issue of power, in seeking to understand the context which they say is so important in shaping ISS processes, they do highlight practices which raise barriers against learning in organisational settings and which prevent "both the assimilation and quality utilisation of IS" (ibid. p.42). They do not speculate as to what these practices might be, saying that further research is necessary to address such issues. It is however surprising that they do not consider that a more sociologically sensitive approach is needed to address the micro-politics of ISS formation given their concern with the concept of learning.

This latter study stands in marked contrast to the previous four works (i.e. Davies,1991; Walsham,1993; Knights & Murray, 1994; Jones, 1995) in that Auer and Reponen's (1997) discussion of organisation and of strategy processes could be labeled as distinctly Classical in perspective (Whittington, 1993). This is despite the authors

apparent sensitivity to social complexity when declaring that action research is needed to understand the contextual dependence of ISS (Auer & Reponen, 1997). While their ability to explore issues such as power is more limited than the other authors that we have addressed, we do see once again that political activities are regarded as present in relation to ISS when such empirical studies begin to consider both the nature of organisation and the concept of ISS in a more sociologically sensitive manner.

What we see therefore is that in the empirical studies referred to above, the authors highlight that ISS formation is a complex social process, involving relationships and interactions between a range of people. That is, ISS is perceived as a range of complex phenomena, which goes beyond anything suggested by the apparent simplicity embodied by literature inhabiting a more Classical perspective. Thus, it can be seen that research conducted in a way that is more sociologically sensitive, within what Whittington (1993) terms a Systemic view of strategy, suggests that we can unearth layers of political activity in relation to ISS formation which traditional literature adopting a more traditional, Classical perspective has rarely considered. The role of political activity as an important facet of IS development is well documented (Checkland, 1981; Mumford et al, 1985; Jayaratna, 1994) We have found that the concept of power is raised time and again in relation to ISS by the studies evaluated, but the authors do not pause to explore the concept of power in any depth, and with the exception of Knights & Murray (1994) albeit that ISS formation is not their main focus, do not evaluate their empirical material in terms of the role of power. We consider that this is an omission which needs to be addressed.

The works that we have evaluated display perspectives which are alternatives to the Classical viewpoint. While Davies (1991) displays some contradictions in her work, each of the authors mentioned is sensitive to the social and political nature of organisational settings. They indicate that far from being the result of a deliberate, planned process, ISS in fact comes about in a far more messy way than the Classical perspective would have us believe. Furthermore, in all cases, where intentions were assessed, it was found that profit maximisation was not the sole goal of those involved in considering ISS. For example, Walsham (1993) found that shifting the balance of control to the centre was an important intention for those engaged in ISS formation; while for Knights and Murray (1994) an intention was for IS staff to maintain their position of apparent omniscience. In other words, we see a plurality of intended

outcome in ISS, not necessarily because a certain number of intended outcomes are chosen and then worked towards, but because if we accept that our understanding of what happens is socially constructed, there are a range of perceptions and intentions across the groups of people involved.

However, we also note another difficulty with some of the studies that we have evaluated. Davies (1991), Walsham (1993), Auer & Reponen (1997) each continues the assumption of the Classical perspective that strategy is a natural occurrence within organisational settings, and that it is something that senior managers *do* to achieve a desired end, this being a criticism of the Evolutionary and Processual perspectives also (Knights & Morgan, 1991). The other two studies, Knights & Murray (1994) and Jones (1995) are proponents of the view that ISS is a part of the broader social being of organisational settings through which people engage and are engaged, and where "strategy is seen as the skilled accomplishment of social actors rather than a 'fact of organisational life'" (Jones, 1995, p.121). This then suggests that the views associated with a Systemic perspective (Whittington, 1993) on ISS formation are worthy of further consideration.

There is then a gap in the literature: while Jones (1995) does address ISS formation in some depth, using a single case study, he does so utilising a theoretical perspective based upon learning. The other studies evaluated above, while addressing ISS formation, tend to do so as a small part of a wider concern with ISS. It is worth noting that a number of authors have made calls for research which focuses specifically upon ISS formation (e.g.: Boynton & Zmud, 1987; Earl, 1993; Atkins, 1994; Lederer & Salmela, 1996), and in particular, for in-depth research which provides a rich understanding of both social practice and context (e.g.: Preston, 1991; Walsham, 1993; Myers, 1997). At the same time, we require greater understanding of the practice of ISS formation as a counter-balance to the Classical perspective of ISS formation, a perspective which we have argued has severe limitations. Thus, there is a gap in the literature for studies which consider alternatives perspectives when investigating in depth the range of social practice associated with the concept of ISS formation. Furthermore, we have noted that there is a related gap in the literature for studies which explicitly address ISS formation in terms of power, this being a concept which is referred to by a range of authors referred to above as being at the heart of political

activity surrounding ISS formation practice and yet to date this remains an under-researched area.

2.5. SUMMARY

This chapter critically evaluated literature in the area of ISS formation. A considerable amount of the research in the area of ISS *per se* can be considered to exhibit a Classical perspective, at the root of which is a functionalist view of organisational settings. We have argued that such a view is but one perspective of the nature of organisations and of information systems, and in our view leads to a limited account of the nature of ISS formation. Viewing ISS formation as part of organisational activity, which in turn can be understood in terms of social practice, brings to our attention political elements such as power. In particular, we have argued that there is a gap in the literature for research that examines ISS formation in detail focussing upon the concept of power. We have noted that a number of studies in the area of ISS formation have reinforced the view that the concept of power is one to which further attention should be given.

Chapter three evaluates the concept of power in relation to ISS formation, discussing an investigative framework that informs our research.

CHAPTER THREE - THE ROLE OF POWER IN INFORMATION SYSTEM STRATEGY FORMATION

3.1. INTRODUCTION

The previous chapter evaluated literature in the area of ISS formation where we argued that in-depth investigation was needed that moved beyond a classical perspective. In considering alternative perspectives, we also noted from the literature that the concept of power was raised a number of times as an influencing factor in the practice of ISS formation. This chapter evaluates literature which has addressed issues of power in relation to ISS. From this we discuss the investigative framework that we have used to inform our fieldwork and analytic work. This framework incorporates a multi-dimensional conceptualisation of power based upon the work of Hardy (1994, 1996), which we argue provides a means for investigating ISS formation through focusing upon the exercise of power. We conclude by arguing that it is important also to address contextual issues, but not by viewing context as something separate and removed from the social practice with which we are interested. Instead, we contend that using Kling's (1987) web metaphor we can explore situations in which contextual elements and social practice are linked, and which are spatially and chronologically specific so as to be distinct from other situations.

3.2. POWER IN ORGANISATIONS

Despite the importance of power to the understanding of organisational settings (Mintzberg, 1983), power as a topic has been regarded as conspicuous by its absence from literature on organisations (Hardy & Clegg, 1996). We can identify three reasons for the absence of the topic in literature: firstly, because social science literature regards the concept as problematic; secondly, because not only is it hard to say what power *is*, there are competing perspectives of power, the more popular of which seem to be attractive because they conform to traditional assumptions of rationallity in organisations; and thirdly, because the practice of management is uncomfortable with the implications of power as a factor in what managers do (Pfeffer, 1981).

The attempts of rational management theory to adequately explore the concept of power has been criticised as unrepresentative of practice in organisational settings (Mintzberg, 1983; Clegg, 1989), not least because of the assumption that rational choices are made in settings of consensual equilibrium in organisations (Parsons, 1951). However, while there is a danger of concentrating upon issues of definition, rather than attempting to explore the nature, and/or role of power in practice (Levine and Rossmore, 1995), it is nonetheless important to determine the nature of the concept being addressed.

Most definitions in organisational literature (Pfeffer, 1981) revolve around a view highlighted in Dahl's (1957) view of power as the ability that someone has to get another person or persons to do something that they would not otherwise have done, which intimates a person's ability to secure their will even against resistance (Weber, 1968). Wrong (1979) argues that, "Power is the capacity of some persons to produce intended and foreseen effects on others" (p.2). While still locating power firmly with the agent, Wrong is careful to distinguish his definition from social action *per se*. In doing this, he suggests that it is the intent and foreseeing of effects that is important. He contends that to include unforeseen and unintended effects of an individual's action on others as an exercise of power would mean that this would make any social activity an exercise of power. This would mean that, power would not be seen as just *a concept* but as *the key concept* when looking at organisations (Wrong, 1979). We see in each of these definitions the idea that power is a capacity of an individual, having power over another. Thus, power can be considered episodic through the explicit act of an agent through *the exercise of power* , but also it may be considered as dispositional in relation to it being *a capacity to exercise* (Wrong, 1979; Clegg, 1989). This begins to lead us to question whether an exercise of power comes from within an individual, or is shaped and mediated by factors external to the individual (Clegg, 1989; Fincham, 1992).

This is something considered by Giddens (1976, 1984) who locates power at the centre of the action/structure debate in his structuration theory. Here, Giddens attempts to resolve the action/structure duality by considering the ways in which action is shaped by structure (rules and resources) but where structure is produced and reproduced by action (Giddens, 1976). For Giddens, (1976) "'Power' in [a] relational sense is a property of interaction, and may be defined as the capability to secure outcomes where the

realisation of these outcomes depends upon the agency of others" (p.111). Thus, here the notion of power is extended beyond the idea of power as an individualistic facet, and can be considered as a dimension of interpersonal relationships, a view reinforced elsewhere (e.g. Pettigrew, 1973; Pfeffer, 1981).

The use a simple analogy will help explain our view. In our perspective a person standing alone on a desert island does not have power in a social sense, and there can be no exercise of power. In our view it is only when one or more additional people are present on the island that issues of power become relevant, but even then we do not believe that power is inherent to any one person; instead we believe that the exercise of power becomes meaningful only in the context of the relations between the people. Thus for us power is seen as a phenomena of social interaction.

We agree with the sentiments expressed in the view that power is "a force that affects outcomes" (Hardy, 1996, p.3) and that, "power is a relation in which the actions of some people have an effect on the actions of others" (Knights and Wilmott, 1999, p.166), because of the acceptance of a relational element and notion of effect upon outcomes. This suggests to us that power in organisations has a social construction element to it, founded in relations in which the actions of some people may be perceived to have impact on the actions of others. In this view the relational dimension of the phenomena is made explicit, but equally it is not necessarily the case that an exercise of power will be against someone's interests, nor that the exercise of power will meet resistance or involve conflict. In this view, power need not just be seen as a negative influence, or as something which is always expressed in terms of power over someone (Hardy, 1994). Rather, power can also be seen as a liberating, and positive phenomena (Knights & Wilmott, 1999), where the exercise of power can be expressed in terms of the the power to do something. This view of power also accepts that the concept of power can be viewed as something that is both socially constructed and contested (Bloomfield & Coombs, 1992; Brown, 1998), and which is something which can be grasped only relationally, as a network of force relations which is ever present (Clegg, 1989; Fincham, 1992; Hardy & Clegg, 1996; Introna, 1997).

That said, to focus excessively upon what power *is* deflects attention away from questions such as, how power works and by what mechanisms (Knights & Vurdubakis,

1994). Consequently, in addition to defining power, research in organisational settings should seek to, "use the concept of power to reveal the complexity and multi-dimensionality of the phenomenon" (Hardy, 1994, p.220). The point about such definitions of phenomena in the social world of organisations is that in our view they cannot be absolute truths, they can not be seen as either universally correct or incorrect because of the different ways in which people can perceive and attribute meaning to what happens; hence, we contend that in seeing power as a concept that is socially constructed, we must accept that people will conceptualise power in different ways. Thus, having set out our view of power, we must now direct our effort towards explaining the mechanisms, or workings, of power in organisational settings.

Clegg (1989) argues that we can examine power by thinking of it in terms of circuits, and identifies three such circuits: the episodic circuit refers to the intermittent agency based exercise of power; the facilitative circuit (or, system integration) refers to techniques of domination arising through conditions of empowerment and disempowerment; the dispositional circuit (or, social integration) refers to the "fixing or refixing of relations of meaning and of membership" (p.224). Central to this framework are obligatory pasage points which represent the points at which new meanings are fixed in the circuits of social and system integration having disturbed the circuits (Introna, 1996). The problem we find with Clegg's (1989) framework is that although obligatory passage points are said to be central to the argument, we are not given any clear means of indentifying them. We remain unconvinced by Introna's (1996) attempt to use the circuits of power framework, which while claiming to have identfied obligatory passage points (e.g. p.142), remains vague as to what they are and how they may be identified.

Mintzberg (1983) argues that we can examine the exercise of power in terms of internal and external coalitions which give rise to six power configurations in the form of a number of metaphors. These are:

The Instrument - where the organisation is seen as an instrument of a dominant external coalition, where control is predominantly exercised through bureaucratic means. Internal coalitions tend towards bureacratic modes of operation.

The Closed System- Internal coalition is very similar to that of The Instrument, but faces no focussed power from an external coalition; instead, faces passive control from a range of influencers.

The Autocracy - External coalition dispersed and passive, as with The Closed System, but internally all power focuses upon the chief executive giving tight control.

The Missionary - Being dominated by ideology external influence becomes viewed as passive, and The Missionary tends to seek to influence those in its environment. The internal coalition coalesces around ideologically driven goals, with members given freedom to make decisions.

The Meritocracy - Power is focused on expertise, with an internal coalition based upon professionalism. Different forms of professionalism give rise to internal political activity, but external influence becomes seen as passive as it is dealt with by the professional experts.

The Political Arena - Conflict characterises both the external and internal coalitions. Political pressures come from a divided group of external influencers, while political activity is high amongst factionalised internal groups.

These configurations may be investigated by focussing upon those influencers who seek to control actions within organisational settings, together with the means or systems of influence which they seek to use (Mintzberg, 1983). What we look for in terms of activity and in terms of means or systems of influence is less clear. While we think that the configurations are a potentially useful means of thinking about power in organisational settings in addition to the limitations noted above, Mintzberg (1983) does not discuss the possibility that we could conceive of a system of power relations *within* which the interaction between both internal and external coalitions takes place. Mintzberg's argues that the main basis for deriving his power configurations is "the relationship between external and internal power" (1983, p.295). The internal coalition is made up of internal influencers, the full-time employees of the organisation (Mintzberg, 1983). The external coalition is made up of those external influencers such as employee associations, associates, owners, and publics - governmental agents, special interest groups, purveyors of pubic interest - who endeavour to influence outcomes by bringing forces to bear on organisational activity (ibid.).

The distinction between internal and external raises questions which Mintzberg does not answer, for example: in differentiating internal from external, does it matter whether people distinguish internal from external in the same way; what about where power may be said to straddle the internal/external divide, as with trade union representation in an organisation for example, or with consultants; does it matter where the researcher places the boundary? In our view, Mintzberg's view of a commonly understood organisational boundary, with internal and external power either side of it, denotes a functionalist view of organisation (Burrell & Morgan, 1979), which we see as a limited perspective, as argued in Chapter Two. Furthermore, Mintzberg's (1983) explanation of five bases of power revolves around the manipulation of and abilities to access resources or expertise. However, the meanings that people have and the possibility that people may seek to influence such meaning, the use of symbols, and the affect of cultural factors are all issues which may be relevant to an exercise of power (Morgan, 1986). Thus, while the configurations of power give us a means of thinking about the exercise of power at a macro-level of analysis, we need some means of exploring the exercise of power that takes account of micro-political issues such as symbolism, culture, meaning, and a system of power relations (Knights & Vurdubakis, 1994).

Given the preceding discussion, we argue that the work of Hardy (1994; 1996; Hardy & Redivo, 1994; Hardy & Dougherty, 1997) is valuable in providing a means for exploring the exercise of power. Hardy (1994, 1996) argues that this multi-dimensional conceptualisation of power is central to understanding strategic action in organisational settings. Hardy has proposed a framework for investigating strategy related issues in organisational settings which conceptualises power along four dimensions as a means of investigating the exercise of power. We can differentiate between the notion of a concept (in this case of power) and a view - or conception - which can be termed a dimension (based upon Rawls [1972]; see Lukes, 1974, p.27). Whereas people may be in agreement regarding a concept of power, they may then vary in how they conceptualise, or rather what set of principles they ascribe to, that notion of power. There is not one ultimate conception, or set of principles about power, awaiting discovery, rather, given the socially contested nature of the concept, interpretations are bound to vary, and indeed to develop in different ways over time (Lukes, 1974). Therefore, dimensions can be thought of as differing views, or conceptualisations, about a central concept of power. Hardy (1994, 1996) has developed this thinking further, by

exploring the way in which we may think about the exercise of power. We regard this as valuable, as given our understanding of power as a social construction in organisations, we now have a means through which we can explore various dimensions of the exercise of power. We have used this framework as the basis for our enquiry, and our amended framework shown below in Table 3.1.:

	Power of Resources: 1st Dimension	**Power of Processes: 2nd Dimension**	**Power of Manipulation of Perception: 3rd Dimension**	**Power of the System: 4th Dimension**
Focus upon view that power can be exercised through:	Management of resources: physical, financial, human; this includes ability to hire and fire, rewards, punishments, funding, authority, expertise.	Management of levels of access to and participation in decision-making processes and agendas.	Manipulation of perception through use of: images, symbols, rituals, language, norms, values, ceremonies, stories.	Web of power relations in which individual constructions of reality and organisational setting are embedded; differential effects evolve over time.
This dimension is a challenge to:	Elitism: views of power as concentrated in the hands of the few - i.e. this view considers that power does not automatically rest with an elite but with those able to control resources.	Pluralism: assumption of equal access to decision arenas & agendas - i.e. this view considers that some may be prevented from accessing, or participating.	Behaviourism: assumption that power is used only in response to conflict - i.e. this view considers that overt conflict is not a necessary precondition for exercise of power.	Sovereign power: view that power is in the control of people - i.e. this view considers that people operate within an already and always operable web of power relations.
Exercise of power:	Intended, deliberate, causal, visible.	Intended, deliberate, causal, less visible.	Intended, deliberate, causal, often invisible.	Not intended, not deliberate, arbitrary, invisible & persuasive; may subordinate some while privileging others. This view forms a backdrop to other three dimensions.
Contribution to understanding of exercise of power	Multiple groups influence decision making; focus is upon use of resources.	Prevention of access or participation to suppress opposition.	Use of manipulation of perception to prevent opposition, move towards desired outcome.	Inability to control power: power embedded in system; problem of resistance.

Table 3.1. A Framework for Understanding Power in Organisations (adapted from: Hardy, 1994; Hardy, 1996; Phillips, 1997)

Hardy (ibid.) attempts to provide a way of seeing in organisational situations, with a view to "peeling back the layers of power" (p.234). In focusing upon "the relationship

between individuals, the organisational context within which individuals interact, and the societal context of the organisation" (Phillips, 1997, p. 44), this framework provides a means of investigating the intricate weave of power and influence in organisations. Some means of addressing the complexity envisioned through this web of power is central to the nature of strategy in organisations (Knights & Morgan, 1990) and has been referred to in studies of ISS formation (Davies, 1991; Walsham, 1993; Jones, 1995).

Hardy's (1994, 1996) approach takes account of and develops theoretical perspectives on power that have been proposed over a number of decades, and in particular is focused upon strategic action in organisational settings. This framework is useful because of the way in which it provides for a multi-dimensional analysis of power that can be applied in research studies (Phillips, 1997).

The framework addresses an area that has been subject to criticism in previous views of power, this being the focus that has been placed upon the activity of individuals, or human agency (Clegg, 1989). In literature that refers to power in social settings, the concept of human agency has often been discussed in relation to notions of structure (Lukes, 1974; Giddens, 1976, 1984) . That is, that there has been considerable debate as to whether power results from human activity, or whether power results from social structures within which activity is located and indeed shaped. This reference to structures is not intended to intimate solid, physical artefacts. Instead, the notion of structure can be considered in Giddens' (1979) terms as social rules and procedures which give shape to, and for Giddens, are in turn shaped by, practices - in fact, a dualistic approach.

The question is, does Hardy address notions of agency and structure, given the above mentioned criticism of earlier views on power which the four dimensions framework is supposed to address? Implicitly Hardy does seek to reconcile these views by incorporating the 4th dimension. Here, Hardy is suggesting that it is valuable to think of a further dimension to the exercise of power, namely in terms of system power, where the, "power of the system produces advantages or disadvantages without the active and conscious intervention of any actor" (Phillips, 1997, p.44). Where other analyses of power have emphasised the action or inaction of individuals, the addition of this fourth dimension adds to such analyses by allowing consideration of the exercise of power in

terms of the social system within which ISS formation is enmeshed. This is in effect proposing a consideration of the underlying social structures that lies beyond the action of any one individual, meaning that such rules and resources to which Giddens (1976) refers are not directly attributable to the activity of individuals. Rather, such structure represents properties of a social system which are drawn upon by human beings, but which at the same time are both produced and reproduced through such activity (Walsham, 1993).

However, it does not mean that such structure exists only in an idealist form solely through interaction of individuals. Rather, "that relations between individuals and other forms of collective agency are constituted in relatively enduring ways which routinely constrain and enable differential opportunities for action and inaction on the part of those agencies" (Clegg, 1989, p.145). Hence, in thinking about the nature of a social system in this way it can be envisaged that both social action and social structure are entwined in the production and reproduction of the situation. Outcome is thus a consequence of both social action and social structure, contextualised at a point in time and space, but taking into account the view that structure has some enduring quality to it (Clegg, 1989). It is the interdependency between these factors that has too often been ignored in research associated with ISS, and indeed this reinforces our view that the need to attend to context is vital in such research.

From our look at general literature looking at power in organisations, we have argued that a perspective that looks at multiple conceptualisations of power is valuable as a means of structuring our thinking, bearing in mind the relational perspective of the phenomenon that we have found support for. We can now turn to consider the ways in which power has been viewed in IS literature.

3.3. CONCEPTS OF POWER IN IS LITERATURE

3.3.1. AGENCY VIEWS OF POWER IN IS LITERATURE

Power has been raised as an issue of importance in improving our understanding of ISS by several authors (Davies, 1991; Walsham, 1993; Knights & Muray, 1994; Jones 1995; Introna, 1997), although literature that has specifically addressed the concept of power

in relation to ISS formation is less numerous. Some authors have addressed the role of power in relation to systems development and implementation efforts (Markus, 1983; Hirschheim & Newman, 1988; Newman & Noble, 1990; Levine & Rossmoore, 1995; Myers, 1995; Cavaye & Christiansen, 1996), and it is to such work that we can now turn in order to clarify our understanding of the concept of power and the ways in which such a concept may be investigated.

Within some of the literature we note some seeming contradictions that begin to hint at difficulties surrounding a concept of power. For example, Levine and Rossmoore (1995) claim that power is exercised by individuals, while Cavaye and Christainsen (1996) argue that power is not exercised by individuals but is a function of relationships between people. Another contradiction occurs with Levine and Rossmoore (1995) claiming that power cannot be exercised by groups of people, while Markus (1983) argues that organisational subunits (groups of people) can exercise power. A final contradiction occurs when Markus (1983) argues that no individuals or groups own power, whilst Cavaye and Christansen develop a relative power rating (1996, p.230) of either high/medium/low to denote the power that various organisational sub-groupings *have*. It is a little ironic that these latter authors also caution against the rating and ranking of issues associated with IT implementation, before going on to provide their own rating of power in relation to IT implementation. However, there is more to this than apparent contradictions between papers in the IS field, because these differences in perspective can be understood in terms of a more fundamental diversity in thinking about power.

The effects of introducing IT into organisations have been researched by Pettigrew (1973), who argues that access to, and the ability to control, information represents a resource that people (in this case systems analysts and programmers) can use to gain power. Thus in such a view, power is something which rests with individuals, and which can be won or lost. A number of other studies of IT implementation have reinforced such a perspective (Markus, 1983; Markus & Pfeffer, 1983; Levine & Rossmoore, 1995; Cavaye & Christiansen, 1996). Despite the apparent commonality in focus of interest upon IT implementation, views of power evidenced by the respective authors differ considerably. One means of exploring some of these differences within the literature is to consider three differing perspectives: where power is a capacity of the individual;

where power is exercised through systems and structures; and where power is exercised through behaviour.

The first perspective is that which considers power to be something which is a capacity of people, a facet that resides with and is exercised by the individual (Pettigrew, 1973; Levine & Rossmoore, 1995). Such a view suggests that people have power, which they then exercise over others, or conversely if they do not have power then it is exercised over them. Power is seen as a thing, with causal effects, and which is a possession (Bloomfield & Coombs, 1992). Power is seen as a struggle for control over an object, often for control of resources, for example in terms of finance, role, control of physical assets, expertise. The role of IS has been noted in this area as contributing to the resources to which people may lay claim and seek to make use of (Pettigrew, 1977; Winfield, 1991). The focus therefore is upon a source-locus of power (Sillince & Mouakeket, 1997) which entails conflict, and such a view has been described as a zero-sum view of power (Fincham, 1992). This means that where one person gains power another loses it – hence, zero-sum. Those researchers who conceptualise power in terms of actual behaviour in making decisions, suggest a view that sees the locus of power residing with the victor in a decision situation that entails a conflict of interests, often considering power in relation to the control of resources (e.g. Hickson et al, 1971; Narayanan & Fahey, 1982). Thus, people are deemed to exercise power through the manipulation or utilisation of resources which others depend upon to some degree or other, and hence influence decision making. Such resources included: information, expertise, political access, credibility, stature and prestige, access to higher echelon members, control of money, rewards and sanctions (Pettigrew, 1973; Hardy & Dougherty, 1997).

There are though some difficulties with a view where power is assumed to be derived from sources who are intentional agents, and where power is assumed to be located. Firstly, such a view assumes that if power is associated with intentional actions of individuals, then power is only evident where we have such intentional actions being undertaken, typically in decision making environments (Clegg, 1989). Similarly, without an evident locus of power, for example as demonstrated by the absence of evident conflict, then power is presumed not to be exercised (Kling, 1980). Studies that conceptualise power solely within this perspective focus upon decisions that *are* made,

and hence no account is taken of those issues that have been ignored, pushed to one side, or sidelined, for whatever reason. Thus, this view concerns itself with concrete instances of power being exercised in the form of a decision being made, through the deployment of resources that are important to one or other of the parties. A problem considering power only in terms of resource manipulation is that what may be considered to be a basis of power in one context may not be in another; hence, contextualisation of such discussion becomes critical in giving such a discussion any meaning. Furthermore, in considering actual decision making, those looking at this area can be criticised because of the assumption that any exercise of power is confined to such situations, and that all people have equal potential to participate in decision making situations (Hardy, 1994).

Despite the problems inherent with such a view, the idea that power is seen as something that an individual has, a capacity to exercise power, which can be located, and indeed mapped as changes in the balance of power alter over time, has dominated the literature on organisations (Hardy & Clegg, 1996).

The second perspective sees power as lying in organisational processes, not in people, where giving attention to systems and structures is central to understanding the bases of power (Bloomfield & Coombs, 1992). It has been suggested that one way in which we can understand power is in terms of information systems and the affects that they have upon associated organisational structures (Kling, 1980; Cavaye & Christiansen, 1996), and through which people attain desired outcomes, particularly in consolidating the position of those already in strong positions through providing another resource to which they can lay claim (Bloomfield & Coombs, 1992). The symbolic aspects of IT in this view are also highlighted, in potentially indicating to other groups that decisions are in progress, or in suggesting that certain people are more influential in view of their use of, or close association with IT (Kling, 1980; Markus, 1983). These views are also recognisable in contributions from the literature on organisational strategy formation where power is discussed in terms of organisational structures and how best to distribute power around the organisation amongst such structures (Mintzberg, 1983).

The expression of power within this view is typically concerned with structures and systems surrounding processes of decision-making. Within these processes a range of

political routines and procedures are enmeshed which may be utilised to influence decision outcomes (Hardy & Dougherty, 1997). This is where outcomes can be influenced by dominant groups or individuals through political manipulation of procedures surrounding decision processes, and participation in or access to such activities (Hardy, 1996). Non-decision making is often perceived as a means by which dominant people maintain the status quo, as it can be seen as a way of maintaining existing biases in the associated processes. Such a view, "allows for consideration of the ways in which *decisions* are prevented from being taken on *potential issues* over which there is an observable *conflict* of (subjective) *interests*, seen as embodied in express policy preferences and sub-political grievances" (Lukes, 1974, p20, original emphasis). There are other reasons that may lie behind the manipulation of processes though. Firstly, less dominant groups may be able to use the procedures to their advantage, and secondly those with power may seek to alter the status quo by allowing others to participate and to impact upon agendas (Hardy, 1994). This represents a broadening of the concept of process power, illustrating how the powerful and the powerless may be advantaged. This view possess similarities to the earlier view, in that it regards non-decision making in much the same way as it does decision making, that is as something concrete, overt and observable (Lukes, 1974).

A third perspective may be described as being behavioural, being associated with power that can be understood in terms of behaviour of people, for example where IS staff exercise power over non-IS users (Markus & Bjorn-Andersen, 1987), or where changes in IS management's behaviour can overcome resistance to change in IS strategy initiatives (Auer & Reponen, 1997). Thus, in this view power can be understood in terms of the behaviours of and relationships between people, in particular the overcoming of opposition or resistance, often where the intervention of a powerful actor is crucial in bringing about the change in state (Pfeffer, 1981). One further aspect of this view is that as a result of the exercise of power some people act in a way that they would not otherwise have done (Markus & Bjorn-Anderson, 1987). As Bloomfield and Coombs (1992) observe, such a view is not without its problems, in particular in assessing just what someone *would* otherwise have done were it not for the exercise of power. For example, Pettigrew (1972, 1985a) views power as being the ability to achieve outcomes that are in line with individuals perceived interests. There is a presumption within such a view that the exercise of power has acted against the *real*

interests of the people concerned, but the problem is in determining exactly what those real interests might be. This is problematic because it not only assumes that people have real interests as distinct from those that were actually served by a particular intervention, but also because there is an assumption that those interests can be determined. We could make judgements about what an individuals real interests may be, but then such views could not be validated, given that the situation in which real interests were exercised had not arisen. A fundamental problem in such views is the belief that real interests exist separately from the power in action (Knights & Wilmott, 1999), and that it is when power is exercised that these interests are either made clear, obscured, or circumvented in some way. We do not subscribe to this view; rather we perceive interest to be interwoven with the operation of power and to flow from such interactions.

In each of the views above, power is discussed in terms of a rather mechanical, but nonetheless person based, or agency, perspective (Bloomfield & Coombs, 1992; Introna, 1997; Brown, 1998). This means that power is viewed as being located with the individual, in clear cause and effect terms, that is as something people do to bring about a specific outcome. The exercise of power by someone that has caused people to do something they otherwise would not have done can be described as a deterministic account of power, a view which has been criticised as being too restricted to take account of the varied way in which power is exercised in practice (Clegg, 1989; Knights & Morgan, 1991). Furthermore, in each of the perspectives there is a presumption that through the exercise of power someone is advantaged while someone is disadvantaged; that there are the powerful and the powerless. Such a view can be seen as lacking explanatory capabilities, as we have to ask how those who we may regard as the powerful came to be seen in such a way, and how they maintain their position relative to what happens around them. This leads us to a relational perspective of power (Bloomfield & Coombs, 1992; Brown, 1998), which challenges some of the preconceptions underpinning an agency view of power, and is an area to which we now turn our attention.

3.3.2. A RELATIONAL PERSPECTIVE ON POWER IN IS LITERATURE

Within IS literature we see views about the exercise of power that both challenge and go beyond the agency perspective discussed above. For example, the exercise of power can be understood as exercised in relations between people (Bloomfield & Coombs; 1992; Introna, 1997; Brown, 1998). This view argues that, "the key to understanding resides in thinking of power as a phenomenon which can be grasped only relationally. It is not a thing, nor is it something people have in a proprietorial sense. They possess power only as far as they are relationally constituted as doing so" (Clegg, 1989, p.207). In this relational view, power is not seen as being in any one place or as something that people have, but is dispersed and enacted through the range of relational interactions between people.

This view addresses the problem in establishing real interests noted previously by arguing that interests are established through relations – and that interests do not therefore pre-exist relations (Foucault, 1980). It argues against "a belief that power determines choice and change as if the intentions of the powerful were directly coincident and continuous with their effects" (Knights & Morgan, 1991, p.268). The problem then is in seeing power solely in a cause-effect sense whereby someone through their possession of power eventually brings about a change in someone else's behaviour, to act or fail to act in a particular way. This is not in keeping with what is found in work situations very often where a considerable amount of what occurs results from activity that had other intentions, and hence renders deterministic accounts inadequate (Knights & Morgan, 1991). In other words, it is difficult to single out a single cause-effect relationship. That is not to say that such a view of power is wrong *per se*, but rather that it is limited. In an effort to resolve these limitations, some authors have concentrated upon other means of understanding relational forms of power. One view has been to address discursive practices; the "discourses, ways of thinking and speaking, instituted within organisational practices – which define the way in which subjects see the world and themselves and thereby discipline those subjects" (Bloomfield & Coombs, 1992, p.467). This expresses a desire to understand the dominant views and associated meanings through what people say and the knowing that they are able to express.

Sillince and Mouakket (1997) highlight the relational nature of power, in exploring the operation of political processes in a systems development. Here they refer to five different perspectives on power which they argue can be utilised as a means of enhancing understanding of power, which they argue should be regarded as a complex phenomenon. The five perspectives on power utilised are: a zero-sum view, where power is a capacity which is exercised in a win-lose fashion; a processual view, where power is exercised through processes surrounding resource exchanges; an organisational view, where power is exercised through the structures and roles; a structurally constrained view, where power is exercised from the wider society to constrain behaviour in organisations; and finally a socially shaped view which they also term a socially constructed view (Sillince and Mouakkett, 1997). They argue that it is valuable to explore power through several dimensions as a means of explaining the richness of the concept in action. By combining perspectives, where each enlarges upon and encapsulates the preceding view, the multi-dimensional nature of power is addressed. This is based upon the premise that any one of the perspectives chosen does not of itself allow for adequate exploration of the concept.

Despite this however, there are certain areas of their work which require clarification. For example, Sillince and Mouakket (1997) initially define power in terms that include viewing power as an individual capacity and as something that involves conflict. They do not clarify this definition, although they later contradict this definition by claiming that power can also be seen as something that is socially constructed. It would therefore seem to us unfortunate that they do not use this opportunity to reflect upon and to clarify their view of power. Furthermore, whilst Sillince and Mouakkett (1997) claim that the five perspectives they identify develop from one another, they do not adequately explain how they are related. Each is discussed in isolation, apparently unconnected to either the preceding or to the following perspectives. They incorporate a fifth perspective, which they term socially shaped power. However, here they display their confusion in using the terms social shaping and social construction, which they seem to regard as synonymous despite their association with different theoretic views (Knights & Murray, 1994). Finally, we are not convinced that the way in which they seek to simultaneously hold five different views about the nature of power is defensible given the problems noted earlier. Sillince and Mouakkett (1997) not only seek to explore the exercise of power through the five views, but also argue that each of the views is grounded in a

theoretically different understanding about the very nature of power. To illustrate, in their zero-sum view, power is seen as a capacity of the individual, while in their social shaping view power is a social construction. To us it would seem preferable for them to state how they understand the nature of power in organisational settings, and then to explore various ways in which the exercise of power can be investigated. This highlights the necessity of establishing our view of the phenomena in question, and then to consider ways in which we can seek to address that phenomenon.

We have now seen a range of viewpoints on power: from views which see power as a capacity of the individual to be exercised as and when the person sees fit, and normally over someone else; through to views where power is seen as something that does not reside within individuals, but rather something which can only be understood in terms of relational interactions between people. While there are numerable viewpoints, we have not argued that one is better than the others, but rather we have shown how each successive view has widened understanding of both the nature of power and the exercise of power. In this sense we do agree with Sillince and Mouakkett (1997), who argue that the complex and multi-dimensional nature of power in operation in organisational settings requires us to address power from a number of levels, effectively incorporating several perspectives. Therefore, we would argue that use of the framework proposed in Table 3.1. presents an opportunity to address some of the limitations seen in ISS literature.

3.4. IMPLICATIONS OF OUR FRAMEWORK FOR RESEARCHING ISS FORMATION

We now move on to consider different ways that we can conceptualise the exercise of power based upon the work of Hardy (1994, 1996) in relation to ISS formation.

Hardy (1994) has developed the framework (See Table 3.1.) from a strong tradition of work in the organisation theory domain, where in particular the work of Lukes (1974) has been used to inform debates on power in organisational contexts (Clegg, 1989). We now discuss each of the dimensions in the framework.

3.4.1. THE POWER OF RESOURCES - A FIRST DIMENSION

In much of the IS and management literature which looks at issues surrounding power, the views expressed about power reflect the ways in which people manipulate resources and has been termed a behavioural perspective (Clegg, 1989; Bloomfield & Coombs, 1992; Fincham, 1992; Knights & Vurdubakis, 1994; Brown, 1998). We term this as the first dimension. Those researchers who conceptualise power in terms of actual behaviour in making decisions, presume that the locus of power resides with the victor in a decision situation that entails a conflict of interests, often considering power in relation to the control of resources (e.g. Hickson et al, 1971; Narayanan & Fahey, 1982). Thus, actors are deemed to exercise power through the manipulation or utilisation of resources which others depend upon to some degree or other, and hence influence decision making. Such resources included: information, expertise, political access, credibility, stature and prestige, access to higher echelon members, control of money, rewards and sanctions (Pettigrew, 1973; Hardy & Dougherty, 1997; Sillince & Mouakkett, 1997).

One problem with work that conceptualises power solely within this dimension is that in studying decisions that <u>are</u> made, no account is taken of those issues that are ignored, pushed to one side, or sidelined, for whatever reason. Thus, this dimension is concerned with concrete instances of power being exercised in the form of a decision being made, through the deployment of resources that are important to one or other of the parties. We must look therefore for instances related to ISS formation where resources are deployed and the associated perceived influence on decision making from any of those involved.

A problem considering power only in terms of resource manipulation is that what may be considered to be a basis of power in one context may not be in another; hence, contextualisation of such discussion becomes critical in giving such a discussion any meaning. For example, introduction of IT may well be seen to affect the balance of power between groups in a department, but as Willcocks and Mason (1987) note when regarding a medical IS, we cannot assume that the same IT introduced into another department will have any affect on power relations. Furthermore, we must be wary of any assumption that all those people in the situation have equal potential to participate

in the decision making (Hardy, 1994). It is the inadequacies of viewing power solely in terms of this view that lead us to consider an additional perspective.

3.4.2. THE EXERCISE OF POWER THROUGH PROCESSES - A SECOND DIMENSION

It is possible to address the limitation of the first dimension by attempting to study non-decision making (Bachrach & Lawler, 1980). This dimension remains essentially behavioural in perspective, as it regards non-decision making in much the same way as it does decision making, that is as something concrete, overt and observable (Lukes, 1974). Lukes argues that work within this dimension, "allows for consideration of the ways in which *decisions* are prevented from being taken on *potential issues* over which there is an observable *conflict* of (subjective) *interests*, seen as embodied in express policy preferences and sub-political grievances" (Lukes, 1974, p.20, original emphasis).

Non-decision making is often perceived as a means by which dominant people maintain the status quo, as it can be seen as a way of maintaining existing biases (Hardy, 1994), for example, as Levine and Rossmoore (1995) note in the case of ISS implementation. There are other reasons that may lie behind the manipulation of processes though. Firstly, less dominant groups may be able to use the procedures to their advantage, and secondly those with power may seek to alter the status quo by allowing others to participate and to impact upon ISS agendas (Sillince & Mouakket, 1997). This represents a broadening of the concept of process power, illustrating how the powerful and the powerless may be advantaged.

Views in this area have moved beyond a concern with the manipulation of resources in relation to decision making situations, to address the exercise of power where issues may have been ignored or sidelined. However, we do note that such a conceptualisation is still concerned with decisions - whether taken or not. This represents a study of the exercise of power in relation to activity of people; such a view does not take account of the exercise of power through the inactivity of people, or where the sheer weight of institutions (Lukes, 1974), such as political, commercial, or educational, represents an exercise of power in preventing issues from arising or being developed (Lukes, 1974).

The expression of power in the second dimension is concerned with processes of decision-making, within which a range of political routines and procedures are enmeshed and which may be utilised to influence decision outcomes (Hardy & Dougherty, 1997). This is where outcomes can be influenced by dominant groups or individuals through political manipulation of procedures surrounding decision processes, and through managing levels of participation in or access to such activities (Hardy, 1996).

3.4.3. THE EXERCISE OF POWER THROUGH THE MANIPULATION OF PERCEPTION - A THIRD DIMENSION

Exercises of power in this dimension have been termed by some authors as the management of meaning (Morgan, 1986; Hardy, 1994), which can be thought of as the legitimation and de-legitimation of actions in ISS formation through the establishment of meaning based upon stories, symbols, norms, and values (Brown, 1998). However, we consider that the concept of the *management of meaning* is flawed, as in our view meaning is socially constructed by individuals and hence we cannot manage the meanings that others attribute to what happens in organisational settings. In our view, all we can hope to do is to influence the way in which people perceive events, and we can therefore more appropriately conceptualise this exercise of power in terms of the manipulation of perception. By seeking to influence understandings, people "create a milieu where others make a preferred decision or take a preferred course of action without any direct application of decision making power" (Phillips, 1997, p.45). Here, the way in which the people view a situation may be influenced so that they may accept things as they are, perhaps for example because they see no alternative to what happens, or because they are content with the situation as it is, or perhaps because they do not think that anything can be done about it (Lukes, 1974; Hardy 1996).

The main contribution of the third dimension is to move concepts about the exercise of power beyond a link with conflict, given that the first two dimensions are concerned with issues where there are at least two parties seeking conflicting outcomes. The way in which we can conceptualise the exercise of power in this dimension acknowledges the ways in which issues can be prevented from arising at all. Hence, we are concerned in this dimension to appreciate why issues in ISS formation are not presented, why

opposition or conflict does not arise in ISS practice, because the basis for these things not happening may be due to the exercise of power (Hardy, 1994; Lukes, 1974).

However, we must be aware that establishing such exercises of power related to ISS may not be simple and that there may be practical difficulties in validating such a view of power, that is, one which explores why something did not happen (Introna, 1996). We can however distinguish between instrumental power and symbolic power. The former, instrumental power, is concerned with the first two dimensions above, where there is a desire to secure an outcome against opposition (Pfeffer, 1981; Hardy 1994). In the latter, symbolic power, an unobtrusive use of power occurs in order to secure an outcome by preventing conflict (Hardy, 1994). Symbolic power is "derived from sources which are brought into play to legitimise outcomes through the management of meaning" (ibid., p.229). In this way, symbolic power can be perceived as being used to influence attitudes through for example, the use of images, symbols, stories, language, rituals, and ceremonies. Power may be exercised through symbolic power in conjunction with instrumental power - for example, with the one producing a substantive outcome, the other seeking to influence the development (post-hoc) of favourable feelings towards the outcome. Symbolic power can also be exercised *instead* of instrumental power to avoid conflict (ibid.). In this case, the legitimation and justification of desired outcomes, through endeavouring to manipulate perception with a view to producing favourable attitudes to ISS, reduces the threat of opposition (Brown, 1998); "steps are taken to persuade other groups to accept certain outcomes although they may be unaware of this" (Hardy, 1994, p. 229).

In conceptualising the exercise of power in terms of three dimensions, we are acknowledging the idea that the exercise of power is concerned with some person or persons determining what others should do. This is an agency view of power, one which has caused concern due to the perceived assumption that power is possessed, or that power is exercised in a simple cause-effect relationship (Clegg, 1989; Knights & Morgan, 1991; Bloomfield & Coombs, 1992; Knights & Vurdubakis, 1994; Phillips, 1997). Viewing the exercise of power solely in terms of the three dimensions discussed can be considered problematic in given that each of the dimensions exhibits, "a belief that power determines choice and change as if the intentions of the powerful were directly coincident and continuous with their effects" (Knights & Morgan, 1991, p.268).

This would not account for ISS practice where a considerable amount of what occurs results from activity that has other intentions, and hence renders such a deterministic account inadequate (Knights & Morgan, 1991). This is not to say that such a view of power is wrong *per se*, but rather that it is limited. In an effort to resolve this problem, and to move beyond such a limitation, we introduce a fourth dimension - the power of the system.

3.4.4. THE POWER OF THE SYSTEM - A FOURTH DIMENSION

In seeking to respond to the above concerns, Hardy (1994, 1996) argues for a further dimension which incorporates a view of power that acknowledges the power of the system. Power in this sense, "is often beyond the reach of tampering by organisational members. It lies in the unconscious acceptance of the values, traditions, cultures and structures of a given institution and it captures all organisational members in its web. Since it advantages or disadvantages individuals without being consciously mobilised, even those who profit from it find it difficult to change. This power is the backdrop against which all organisational actions and decisions take place" (Hardy, 1996, p.8).

This view of power develops the work of Foucault (1980) in understanding the power of the system which moves beyond conceptions of power along sovereign lines (Clegg, 1989), where power is seen purely in terms of a capacity or capability of any individual to attain an outcome. Instead, power can additionally be perceived in terms of relations, as, "historically constituted configurations of practices" (Knights & Vurdubakis, 1994, p.172). Power can thus be viewed as a pervasive phenomenon that is concerned with relationships between parties (Hardy, 1994; Knights & Vurdubakis, 1994), whereby, "power is neither given, nor exchanged, nor recovered, but rather exercised, and that it only exists in action"(Foucault, 1980, p.89). In this dimension, power can be conceptualised as, "the name one attributes to a complex strategical relationship in a particular society" (Foucault, 1981, p.93, quoted by Knights & Vurdubakis, 1994, p.172), as opposed to something that an individual possesses and exercises. These complex relationships have been referred to as net-like, or a web of power relations (Smart, 1994). Here certain people are advantaged while others are disadvantaged without any clear notion of power being actively engaged. This view of power of the

system lies, "in the unconscious acceptance of the values, traditions, cultures and structures of a given institution or society" (ibid. p.232). To put it in context, "this power [of the system] is the backdrop against which all organisational actions and decisions take place" (Hardy, 1996, p.8). We also note that power need not be seen as something wholly negative (Foucault, 1980). The exercise of power can be considered as something positive, where power relations are something within which people operate, and are a part of the means through which individuals construct their understanding.

Having discussed the four dimensions, we must ask how the framework is to be used - do we look at one, some or all of the dimension?

3.4.5. UTILISING MULTIPLE DIMENSIONS

In setting out the framework in Table 3.1. we are not arguing that we should choose any one of the dimensions as *the* most appropriate view; instead we argue that it is by taking all four dimensions collectively that we can address the multi-dimensional nature of the exercise of power, and through which we can investigate the nature of ISS formation.

We contend that the first three dimensions, that is, the exercise of power through the management of resources, through the management of processes, and through the manipulation of perception, should be seen as operating against the backdrop of the power of the system. It may well be that we are able to explain a situation in terms of all four dimensions of power, or equally it may be that one particular dimension is adequate in accounting for a particular outcome or outcomes. The point is that this multi-dimensional approach is necessary if enquiries into the exercise of power are to improve our understanding of ISS formation. Exploring the exercise of power solely in terms of the management of resources of resources view, the first dimension, has been the downfall of much ISS literature to date (Bloomfield & Coombs, 1992; Knights and Murray, 1994; Jones, 1995; Sillince & Mouakket, 1997).

3.5. INVESTIGATING ISS FORMATION: THE PLACE OF CONTEXT

The importance of addressing contextual issues when seeking to research either ISS related activity at an organisational level, and indeed other areas of activity associated with IS has been noted elsewhere (e.g. Pettigrew, 1977; Mintzberg, 1978; Kling, 1987; Davies, 1991; Hanseth, 1991; Levine & Rossmore, 1995). We argue that some way is needed of making sense of the circumstances within which and through which social practice may be considered to occur. These two aspects are not remote from one another, so that any analysis that seeks to evaluate one independently from the other, that is, context separately from social practice, would in our view be incomplete. Context is a generic term; a dictionary definition refers to context as the conditions and circumstances that are relevant to an event, fact, etc. (Collins Dictionary of the English Language, 1986). We have already outlined a framework based upon a multi-dimensional view of power that will be utilised to help make sense of social activity, but we must be sure to adequately address this notion of context.

Pettigrew (1985) argues that in much of the general literature on strategy where context is considered, it is taken to refer to the competitive environment that exists beyond the notional organisational boundary. This view of context is reflected in some of the ISS formation literature, where context is out there, is separate from the organisation, and is something that can be appraised in order that the organisation can take the appropriate action in response (e.g. Earl, 1989; Ward & Griffiths, 1996; Robson, 1997). This view reflects a functionalist view of organisation, as we have discussed previously.

One means of addressing context is through combining levels of analysis, one aspect of which may be thought of as vertical in considering levels of analysis, and a processual analysis which may be viewed as horizontal, representing a based view. Such an holistic, contextualist perspective (Pettigrew, 1985) seeks to address the way structural and contextual variables and categories (vertical analysis) are linked to process(es) (horizontal analysis) being investigated. There are two dimensions to this: one considers how context is involved in the production of action, while the second considers how aspects of context are mobilised or activated by actors or groups. However, Pettigrew's view seems to us to be solely concerned with an agency view of social action, while

context is discussed in terms of an inner context and an outer context - something to be examined as scenery almost on a film set within which action occurs. This idea that there is a certain degree of separability between what occurs and context, with a view to explaining the interaction between the two does not to us seem adequate. It is because of this that we find Kling's (1987) approach to addressing contextual issues more persuasive.

Kling (1987) explores context in relation to a particular situation of interest, noting that while context is often explained in terms of relationships, resources, and procedural constraints, these often differ between given situations. Therefore, we adopt a web model (ibid.) perspective where we focus upon infrastructural, spatial, historic, and social relations. That is, we need to examine infrastructural, geographic, and historic issues through which we can understand both the situation in which events are enacted, and the defining situation (ibid.) which can be considered as a means of bounding our analysis. Thus, for any two situations, the term context represents a relationship between those situations. For any given situation, population, equipment, spatial, and temporal elements help us to bound that situation when considered in relation to another situation (Kling, 1987). It is the discussion of these factors in relation to one another that form our view of a context of interest, and it is these which have shaped our analysis. We are however sensitive to the problems of determining where boundaries may be placed (Jayaratna & D'Arcy, 1991) given the differing perspectives that people have of a defining situation. In particular, we recognise that while we can make use of the web model approach to define a boundary, we must remain sensitive to the possibility that other people with whom we have contact may define boundaries in different ways. This highlights the need for the analyst to be clear in explaining the level and scope of analysis.

Kling's (1987) use of the metaphor of a web to illustrate the complexity of activity surrounding development, application and usage of computerisation in organisations explicitly includes social relations in the model, to provide "a model of the social terrain on which people act" (p.321). Viewing the notion of context in terms of a web metaphor helps us to define a social context for our case studies of ISS formation by taking into account the following aspects (based upon: Kling, 1987, p.309).:

- the *social relations between a set of participants* who can influence ISS formation, which we term S*ocial Practice*;
- the *infrastructure* available in support of these relations;
- the *history* of commitments made which influence the aspect of ISS formation of interest

Kling (1987) argues that the social practice element should be considered in terms of political or cultural models, a point with which we are in agreement. However, we find Kling a little imprecise in making clear just how he seeks to make sense of social relations. A feature of Kling's lack of explanation may be related to a certain laxity in the use of terminology, where for example Kling appears to use the terms social relations, social elements, social processes, social terrain & social relationships as synonyms (e.g. 1987, pp.318-321). Without delving in to the definitions of each term, we would suggest that such imprecision in terminology does little to help understanding of his argument. We have argued for an analysis of social practice that addresses the exercise of power, and it is this interpretation of web models that we utilise for our analysis of the case studies, in tandem with infrastructural and historic dimensions as a means of defining and exploring the situation of interest.

What is also interesting in Kling's discussion of web models is that he puts forward a view of social context which is a combination of social action and situation specific elements combined. So far as we may use the notion of context he says, then this refers to one situation (and associated elements) in relation to another. In such a view, context and social practice are not readily separable. Kling argues that having addressed infrastructural, spatial and historic issues, we need some way of understanding social elements. We have already argued that we can address social practice associated with ISS formation through focussing upon the exercise of power.

Therefore, while it is necessary to look at a range of elements, including populations, equipment, space, and time, these should only be thought of as making sense in relation to the social practice under consideration. We argue that it is the inclusion of the web of elements which help explain a situation of interest, and which enable us to differentiate between that situation and any other. In our view a situation is neither explainable solely in terms of social practice, nor solely in terms of any of the elements referred to above.

In our view ISS formation as a social practice can addressed in a thorough analysis in terms of web models (Kling & Scacchi, 1982; Kiling, 1987), exploring situations within and through which social practice is constituted.

The use of a web model perspective represents an area of weakness in Walsham's (1993) work, in that his explanation is limited. Walsham incorporates Kling's view of web models in a model that attempts to explain organisational activity utilising structuration theory (Giddens, 1984) . Walsham distinguishes between Social Process and Social Context as representing "an action/structure duality" (Walsham, 1993, pp.58-70), and seeks to link them using structuration theory as a meta-theory. The problem with this it seems is that in the way in which Kling articulates web models this does not seem possible, because web models according to Kling already incorporate social relations (e.g. 1987, p.347), which we would argue cannot be seen as somehow being distinct from notions of social process. Thus, Walsham (1993) argues that he is able to link an understanding of social process through the duality of structuration theory with an understanding of social context, both being distinct areas for analytic focus. However, by using web models to understand social context Walsham is in effect arguing that investigating social relations between people is somehow entirely different from investigating social processes, which are described as encapsulating elements of interaction between subcultures, meanings ascribed by groups, and issues of autonomy and control (ibid., p.69). How this differs from social relations is not explored, as we would argue that the elements Walsham describes as social processes cannot be differentiated from social relations between participants (Kling, 1987), which encapsulates division of labour, relative status, power, and the way in which people define their situations (ibid. pp.311/316). To us it would seem that this area requires clarification by Walsham, and highlights our need to explain the perspective taken in analysis, which has been the focus of this chapter.

3.6. SUMMARY

This chapter has discussed our investigative framework for considering the exercise of power, and which has been utilised as an initial guiding device in exploring ISS formation in terms of power. We argue that we can consider the exercise of power as an

important factor in understanding ISS formation, utilising a range of literature to reinforce our view. From this we go on to argue that a multi-dimensional conceptutalisation of power presented provides us with a useful, and valid means through which we can investigate ISS formation in terms of the exercise of power. The framework that we adopt is theoretically grounded in the literature, providing a means of understanding organisational activity by "peeling back the layers of power" (Hardy, 1994, p.234), but framed within a web-model analysis (Kling, 1987). It is through the latter that we address contextual issues within we believe ISS formation practice is embedded. We do not to see the notion of context as separate and distinct from the social practice of interest, but rather to understand that both aspects are enmeshed in specific situations, functions of time and space.

The next chapter discusses the research philosophy, methodology and methods used in this research.

CHAPTER FOUR - RESEARCH PHILOSOPHY AND METHOD

4.1. INTRODUCTION

This chapter presents the philosophy, methodology and methods which underpin our research. We provide an overview of these aspects in Figure 4.1. below prior to discussing each of the areas in turn.

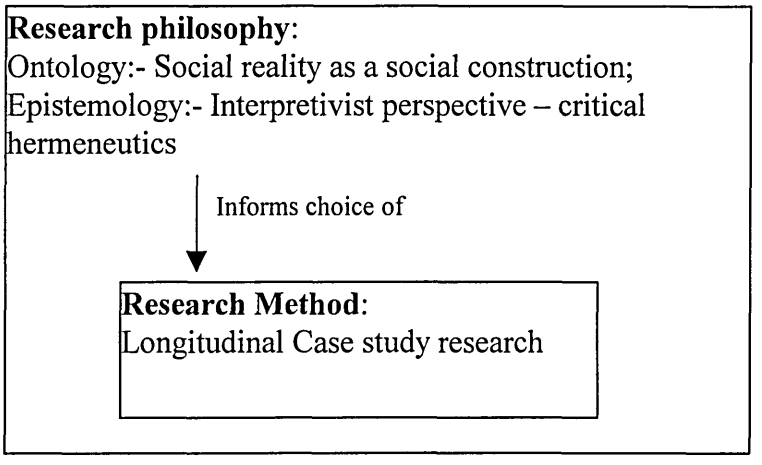

Figure 4.1. An overview of research philosophy and method

4.2. RESEARCH PHILOSOPHY

4.2.1. ONTOLOGY & EPISTEMOLOGY - AN INTERPRETIVIST PERSPECTIVE

Ontology is concerned with the taken-as-given nature of reality. In the natural world this may be thought of as being about the physical properties of our world, those elements that are built, or which grow in some physical sense. In addressing ISS in organisational settings we are referring to the nature of the social world, as opposed to the natural world, and we are therefore concerned with the nature of that social world, and how we view that world. In our view organisational settings for ISS formation can be thought of as being socially constructed through human activity, relationships, and interactions (Berger & Luckman, 1967; Chaffee, 1985; Scarborough, 1998). People socially

construct what is meaningful and what is significant in their environments, within and through their interactions with others.

Hence, in research with people in work based situations - where we address what they do, why they do what they do, and what they think they have or are doing - we are investigating a social world. We must therefore be explicit about the perspective that we hold and the methods that we adopt to investigate this world (Galliers, 1992).

Indeed, in our view researchers are as much a part of this social world as are the subjects of the research. This observation goes to the heart of a long standing debate in research inquiry (Gummesson, 1991), namely as to whether researchers can be impartial observers of what is occurring, or whether researchers should be regarded as fellow actors in an evolving occurrence. Our view is in accordance with the latter view, in that social occurrences do not happen independently of any of the people involved, or have meaning independent of them. Our area of inquiry only has meaning through the parties involved; they ascribe meaning to what occurs - they socially construct occurrences within that domain. The idea that we can be impartial observer of what appears to us to be an objective reality is in our perspective misleading. Instead, the researcher is engaged in the mutual construction of the social world through their involvement with and thinking about that world. This may be categorised as internal realism, where, "reality-for-us is an inter-subjective construction of the shared human cognitive apparatus" (Walsham, 1995, p.76). This means that in our view people are jointly involved in constructing realities, and that some of the aspects of social reality are the subject of shared understanding. This is as distinct from external realism where a definitive reality would be perceived to exist independently of us, or subjective idealism where any sense of reality is constructed and is unique to any individual. The action of individuals cannot be understood purely in terms of the individual, that is, being reducible to the human being with the social world equating to the sum of that individually held consciousness (Doyal & Harris, 1986). Instead, we can view the actions that occur within the social world as being a product both of individual action and also as being a consequence of situated interaction, in this case in organisational settings.

Epistemology is concerned with our theory of knowledge, and how we gain knowledge about the area of interest (Hirschheim, 1992). This study has not sought to identify, observe, or to comment upon what may be regarded as an independent reality as we do not consider that there can be such an independent reality to be found. The notion that there are observable facts or a single explanatory theory awaiting discovery can be considered as implausible if we accept the view that perception can be ambiguous, and varies from person to person (Doyal & Harris, 1986).

In our view ISS formation becomes meaningful when we address the perspectives of those involved, and that to understand this world we need to gain access to those perspectives through social constructions such as language, consciousness, shared meanings and instruments (Myers, 1997). We also recognise that that a researcher is one more actor in the social construction of this reality, so that we need to be aware of, and reflect upon, the effect we have upon the articulation and interpretation of events. We describe our own perspective as being interpretivist, whereby "interpretivism is an epistemological position, concerned with approaches to the understanding of reality and asserting that all such knowledge is necessarily a social construction and thus subjective" (Walsham, 1995, p5.). As seen, in our view the concept of power in relation to ISS formation is just such a subjective, socially constructed phenomena, and hence an interpretive approach is indeed appropriate. Furthermore, interpretive research has been identified as highly appropriate for the examination of social phenomena in the IS field (Lee, 1991; Orlikowski, 1991; Walsham, 1995).

The science of interpretation can be labeled as hermeneutics, and although classically this refers to the interpretation of texts, in an organisational sense it can be applied to the construction of organisational settings as texts for interpretation. Such an approach is aligned with a social constructionist perspective, highlighting subjective meanings of people and social structures within which and through which meanings are constructed. This "enables one to portray the real complexity of organisations as social, cultural and political systems" (Myers, 1997, p.250). Furthermore, we can distinguish between pure hermeneutics and critical hermeneutics. While the former is concerned with interpretations which are accepted at face value, the latter incorporates a reflective critique of the interpretations within organisational settings. Our perspective is in line with a critical hermeneutic perspective, which:

- recognises that pre-knowledge and prejudice can affect our interpretations and must be acknowledged;
- maintains a dialectic between analysis and theoretic critique in developing our interpretation;
- addresses and reflectively integrates the historical context in which research takes place (Myers, 1997).

While such an approach may seem similar to critical theory, we would argue that a key difference is that in critical hermeneutics researchers do not carry from the start an assumption as to where the main issues or conflicts are to be found (Poster, 1990). The main epistemological assumptions of our interpretivist perspective are set out in Table 4.1. below:

	Main Assumptions of our Interpretive Perspective in relation to ISS formation
1	Reality can be seen as subjective, socially constructed & interpreted based upon beliefs & value systems
2	Attempts to understand phenomena through addressing meanings that people assign to what happens.
3	There is a focus upon social, cultural and historic context.
4	Research is not seen as being value free; and this implicates researchers as active influences upon any findings as much as it does those researched.
5	Facts are not seen as being independent of any meaning that people may attach to them; for example, what is done, what is said, what is read, what is seen in the course of ISS formation - all are interwoven with perception, & meaning.
6	Evaluation will include: logical consistency - where the principles of logic are evident in the explanation given of an event; subjectivity - where the meaning and understanding that has come from the people involved is clearly reflected in the research; adequacy - where it is evident that the author has sought to uncover and explain the rationale behind what takes place so far as they are able.

Table 4.1. Assumptions of Interpretive Perspective (Based upon: Walsham, 1995; Cavaye, 1996; Myers, 1997; Darke et al, 1998)

The assumptions set out in Table 4.1. above, lead us to consider the benefits of an interpretive perspective. In our view, the benefits of such an approach are that the focus remains upon understanding the subjective nature of the research situation, whilst at the same time maintaining an awareness of potential problems. There is a danger with an interpretive view which is that researchers may presume that they have some form of empathy or indwelling with the subject (Miles & Huberman, 1994). It is in our view debatable whether an individual can truly empathise with another in a research situation, as researchers are either trying to empathise on the basis of what is expressed through language, or through what is seen by them, or a combination of both. The problem with the former is that we see language as contextual in use and development, and it would not be certain that researchers and those researched share a common understanding of the language used. The problem with the latter is that what we see may be conditioned by attitude, belief, experience, and that what researchers perceive to be happening may be very different from what the people being researched perceive. The point is that it may be naive for researchers to assume that they can truly empathise with those they endeavour to research. For example, in many instances there will be an awareness that one party is an insider and one is an outsider, albeit it possibly with some pre-understanding of the situation. It is better therefore to confront the differences that exist, as a major difficulty with many studies in organisation concerns the lack of openness about the role of researchers in relation to the person or persons being observed (Wilmott, 1987). In this research, although an outsider to the Police Forces being researched, the researcher came with a level of pre-understanding having previously worked in the Police Service for several years. On the one hand this gave the researcher a certain understanding of some of the cultural aspects of the Police Service. On the other hand though, the researcher had to remain alive to the possibility that he might make assumptions, or presumptions about the research settings, which in fact required further exploration.

Finally, we also take note of the practical view of interpretivist approaches whereby researchers are as inseparable from the domain that they seek to examine as are the alleged informants. Thus, researchers will have, "their own understandings, their own convictions, their own conceptual orientations; they too are members of a particular culture at a specific historical moment. Also they will be undeniably affected by what

they hear and observe in the filed, often in unnoticed ways. Where we as researchers interact with the people who are the subjects of the research then we must remain aware that such an interaction will be a co-elaborated act on the part of both parties, and not a gathering of information by one party (Miles & Hubermann, 1994). This observation means that we have to give careful attention to the appropriateness of research method, and it is to a discussion of method that we now turn.

4.3. RESEARCH METHODS

4.3.1. CONSIDERATION OF ALTERNATIVE METHODS

Tesch (1990) highlights twenty one distinct methods associated with qualitative research alone, although this is by no means to suggest that research in an interpretivist tradition equates to qualitative research and vice versa - a problem of some researchers in the IS area (Myers, 1997). While there are many research methods that could have been chosen for this research effort, the choice of method must take account of both the researchers own philosophy, the research context, and any constraints that may be pertinent. For example, given our philosophical beliefs discussed above, it was apparent to us that methods such as laboratory experiments, surveys, forecasting, and simulation were not appropriate as they would not allow us to adequately explore what we saw as fundamentally social phenomena in ISS formation. An approach involving a questionnaire based survey for example would not enable us to get close enough to the social, cultural and historic context of the phenomena (Silvermann, 1993; Easterby-Smith et al, 1991). The essence of such methods, which have been labeled as scientific (Galliers, 1991a), is that they are characterised by repeatability, reductionism, and refutability (Checkland, 1981). By contrast, an interpretive approach suggests that many interpretations are possible of any particular event, that researchers will have an impact on the situation of interest, and that human activity contains a mixture of both intended and unintended events (Checkland, 1981).

As several authors have argued (e.g. Walsham, 1995; Cavaye, 1996; Darke et al, 1998) interest in organisational and social issues associated with computer based information systems leads us towards methods which focus upon understanding social phenomena in their natural settings and cultural context. With these points in mind, we narrowed our

choice of research method to the following: action research; ethnography; case study research. Each of these methods has been identified as an appropriate IS research technique where there is a desire to get close to subjective and social phenomena surrounding IS in organisational settings (Orlikowski, 1991; Galliers, 1992; Myers, 1997).

Action research is a widely used method in IS research (Checkland, 1991; Baskerville & Wood-Harper, 1998). This method was of interest to us because of the possibility to be actively engaged in the problem situation, while at the same time reflecting upon, and integrating the evaluative outcome of our own and others interventions in that situation. The reflective element in action research is important as a means of learning and adapting the action that one takes (Checkland, 1991; Jayaratna, 1994), although it has been argued that action research is merely a combination of observation and participation (Cavaye, 1996). If we accept that researchers are actively taking part in attempting to solve the problem (Mansell, 1991) then this suggests that Cavaye's (1996) view is limited, and that reflective engagement in the problem situation is an essential component of action research (Schon, 1983).

Action research seemed to us an appropriate means by which to conduct research in to ISS formation, and would also satisfy the criteria of our philosophical position. This method also seemed to be valuable for research that was endeavouring to explore the exercise of power. However, we decided that we would not adopt action research as a method for the following reasons: we were not going to be able to become engaged for any significant periods of time in the situation given that we were undertaking the research on a part-time basis while working full-time as an academic; in addition, we were not engaged in an action role initially, and were not going to be able to engage in directly addressing any specific problem situation.

Ethnography is an acknowledged IS research method (Myers, 1997). This was considered by us as a method because we felt that it would have enabled us to get close to the activity surrounding ISS formation, and also to become engaged on a day to day basis with the social and cultural aspects that needed to be considered in relation to the exercise of power. In an ethnographic study we are concerned to grasp the view of the native, by drawing out the way in which people constitute and interpret organisations on

a daily interactional basis (Schartzman, 1993). This requires ongoing immersion in an organisational setting if researchers are to be able to legitimately claim to be engaged in ethnography. We decided that an ethnographic method would not be feasible for this study given our inability to spend the time required in an organisational setting, even were access to have been granted for such a study. Similarly, such a method would have meant that we would have had to choose to limit our study to one, or at best two, organisational settings because of the time involved in undertaking ethnographic work.

4.3.2. INTERPRETIVE CASE-STUDIES

We have adopted interpretive in-depth case studies as our research method, this being a recognised method of conducting IS research (Galliers, 1991a; Walsham, 1993, 1995; Cavaye, 1996; Myers, 1997; Darke et al, 1998). Case study research has been defined as, "an empirical inquiry that investigates a contemporary phenomenon within its real life context, when the boundaries between the phenomenon and its context are not clearly evident, and in which multiple sources of evidence are used. It is particularly valuable in answering who, why and how questions in management research" (Yin, 1989).

Although the use of case studies has been widely acknowledged as a valuable research method in IS, there are several ways of perceiving the use of a case study method and no one universally accepted right way (Galliers, 1992). Where choices of case study method are discussed we tend to see a distinction drawn between positivist and interpretive case study approaches (Cavaye, 1996; Darke et al, 1998). However while we note that such terminology can create a false impression of an either/or choice where one is bad and one is good - with positivism increasingly cast in the role of bad in organisation based research (Silvermann, 1993) - we take the view that the selection of a method should flow from our philosophical position, and not merely be adopted because it is seen as being good.

Nonetheless, we do recognise that there are different approaches to case study research (Cavaye, 1996). For example, case studies in what has been termed a positivist tradition (e.g. Yin, 1989) tend to see controlled observations, replicability of study, and generalisation of findings as key factors in such methods (Cavaye, 1996). However, in

our view social situations are akin to a dureé (Giddens, 1984), and never the same twice, so that it is simply not possible to replicate a study precisely. A critical hermeneutic perspective by contrast addresses the social, cultural, and political aspects of organisational settings in an historic context, recognising that this will be constantly changing over time. Generalisation in a positivist sense is problematic if it is seen in the context of causal relationships from a sample to a population, as this would seem to indicate that one is searching for universally applicable truths. However, in our view we acknowledge,

> "a second mode of generalisation that is 'the extension from the micro-context to the totality that shaped it' [Buraway, 1985]. In the latter view every particular social relation is the product of generative Forces of mechanisms operating at a more global level, and hence the interpretive analysis is an induction (guided and couched within a theoretical framework) from the concrete situation to the social totality beyond the individual case" (Orlikowski & Baroudi, 1989; quoted in: Walsham, 1993, p.15).

Hence, in this sense, based upon interpretation of the research situation a form of generalisation is possible to an existing body of knowledge. In terms of the contribution to knowledge from such an approach, it has been argued (Myers, 1997) that one way in which the interpretive case-study method provides a contribution is through the development of a rich description of a situation, a view that we find problematic. While the provision of a description may well inform the reader about a situation, we argue that to make a contribution to knowledge it is necessary to at least demonstrate how the findings contribute to existing theoretic understanding. We have identified themes based upon the abstraction of issues from our case studies, which has led to the development of an analytic proposition to theory through the construction of an explanatory framework (Miles & Huberman, 1994).

There are a number of aspects of an interpretive case study method that we consider valuable, these being:

- Investigation of contemporary phenomena in organisational contexts. With a focus upon in-depth understanding of phenomena and context;
- Appropriate for answering how? and why? questions;
- Understanding of phenomena by addressing meanings attributed to them by people in cultural & historic context;

- Allows theoretic or analytical generalisation, development of concepts, and abstracting of specific implications;
- Enables dialectic between theory and development of understanding throughout research process.

In determining our choice of research method it seemed impossible to disregard researchers situations in terms of time, resource availability, and geographic location, and indeed it would be dishonest to suggest that they play no part in method determination - this is part of the reality of research (Jones, 1985). In addition to the other factors mentioned above, this led us to conclude that an interpretive case study method, from the perspective of critical hermeneutics, was the most appropriate method for the investigation of ISS formation. This method enabled us to maintain a dialectic between analysis and a theoretic framework that addressed ISS formation in terms of the exercise of power.

4.4. THE RESEARCH PROCESS

Having chosen the interpretive case-study method, we conducted six longitudinal in-depth case studies from 1994 to 1998, which provided a rich set of data for a cross-case comparative analysis. The longitudinal approach enabled a detailed series of interpretations to be developed over the four years. Such longitudinal comparative case studies enable the investigation of processes in context, highlighting the various connected levels of analysis, which provides for a richer understanding than would be possible than by taking a snapshot of a brief moment in time (Franz & Robey, 1987; Pettigrew, 1990; Van de Ven, 1992). This in turn provides, "scope to reveal the multiple sources and loops of causation and connectivity so crucial in identifying and explaining patterns in the process" (Pettigrew, 1990, p.271).

Here, the cases studies comprised five Police Forces in Scotland, with a small number of case studies being chosen to enable sufficient depth of analysis while at the same time allowing for a greater possibility of analytic generalisability than would a single case (Benbasat et al, 1987; Eisenhardt, 1989; Yin, 1989; Easterby-Smith et al, 1991). A single case study allows for a rich, in-depth analysis of a specific organisational

situation (Walsham, 1995; Myers, 1997). Yin (1989) argues that for a single case study site to be acceptable it must represent either the critical case in testing a well formulated theory, or must be an extreme or unique case, or especially revelatory. However, a weakness of a single case study is that the study may turn out not to be critical, extreme, unique, or even particularly revealing. Multiple case studies are preferable when the intent of the research is description, theory building, or theory testing as such a study allows for cross-case analysis and theory building (Benbasat et al, 1987).

Having decided to study several organisations, we established that each organisation was willing to cooperate with the investigation, and that each was engaged in ISS formation. In each of the case studies our focus was upon ISS formation, which followed discussions with representatives from each Force in which they claimed that they were engaged in developing ISS. In each of the cases, we focussed upon practice associated with ISS surrounding one specific strategic decision area for IS (Waema & Walsham, 1990). In all of the cases, the interviews were all prearranged, with visits made to institutional sites to speak with the individuals. In addition, in one of the cases, we spent a period of three months working with the case organisation, during which time numerous interviews were undertaken where we could be considered to be in the role of participant (Walsham, 1995). Throughout the research process we were conscious of the need to assess our own prejudices and assumptions, indeed to reflect upon our own mental construct (Jayaratna, 1994), and to be aware of the influence that we may have.

We deliberately avoid use of the term *participant observer* because we do not accept that an individual can be a participant without observing in the research situation. The very act of participation in our view means that the researcher is observing in some sense; hence the term participant observation is redundant from our perspective.

4.4.1. VALIDITY OF THE RESEARCH

A number of authors (e.g. Yin, 1989; Easterby-Smith et al, 1991) have sought to develop criteria by which researchers may judge the validity, reliability and generalisability of qualitative research. These terms reflect an attempt to adapt criteria used in quantitative research for those doing qualitative research. While we would argue

that the aspirations of qualitative research are fundamentally different from quantitative research (Miles & Huberman, 1994) it is nonetheless just as important to address issues of validity so that others may appraise the worth of the research (Kvale, 1989). These criteria are summarised in Table 4.2. below.

Criteria	**Issues For Consideration**
Validity	Has the researcher gained as much access as is reasonably possible to the knowledge and meanings of informants? Construct validity - use multiple sources of evidence - establishing chains of evidence - have key informants review draft cases Internal validity - do pattern matching - do explanation building External validity - use replication logic in multiple cases
Reliability	Will similar observations be made by different researchers on different occasions? - use case study protocol - develop case study database
Generalisability	How likely is it that ideas and theories generated in one setting will also apply in other settings? - rely on analytical rather than statistical generalisation - that is, develop propositions to theory - use multiple case studies in order to strengthen the analytic generalisations

Table 4.2. Issues of validity, reliability and generalisability in qualitative research (developed from Yin, 1989; Easterby-Smith, 1991).

The use of multiple case studies was one of the ways in which we addressed v*alidity.* Although we did multiple case studies, we used our initial series of interviews and data collection efforts in one of the case studies as a pilot study, which was in 1994. This enabled us to reflect upon our research methods, including the interview process, the analytic methods, and to reflect upon the initial stage of the dialectic between theory and analysis. It was from this initial reflection upon our interpretations of the data in this case study that we began to notice the emergence of a concept that we had not previously focussed upon in the literature, this being the role of power. Following this pilot exercise, we returned to the literature to address the nature of power in relation to ISS formation, and as a result subsequently incorporated a perspective on the exercise of power into our research efforts. This demonstrated the utility of using one of the cases

as a pilot study, although the process of reflection and evaluation was one that we continued throughout the research process. This also enabled us to address issues of *reliability* as we were able to develop our case study protocol and to set up a form of case study database using NUD*IST[1] (Non-numerical Unstructured Data Indexing Searching and Theorising) software following this pilot study.

Also in terms of *validity*, data was collected through a number of methods, with multiple sources of evidence:

- through formal in-depth interviews, and informal discussions;
- through a three month period of participation working with people in one of the case-Forces, when many formal and informal discussions were undertaken, as well as a series of observations made while working full-time with people;
- through a diary kept during the period of participation by the researcher;
- through the collection of documentary material from the case-Forces as well as from other institutions and groups;
- through the collection of secondary material published about the case-Forces.

The range of data sources noted above provided a degree of triangulation (Fielding & Fielding, 1986) which enhanced the validity and reliability of the study overall. In discussing triangulation we are not referring to the collecting of different kinds of data *per se*, but rather as a means of relating the various data, "in such a way as to counteract various possible threats to the validity of our analysis" (Hammerseley & Atkinson, 1983, p. 199). Triangulation does not in our view prove validity or reliability of either the data or the research, but instead to interpret the data in a more critical manner, testing, probing, looking for weaknesses across the range of data, with a view to improving confidence in the data of the researcher and of the audience (Fielding & Fielding, 1986).

We used replication logic across the case studies by asking similar questions during our semi-structured interview sessions. Using the range of data gathered, each case study was written up, with copies being returned for factual checking and comment to people in each of the case studies. This provided valuable additional comment, and stimulated

[1] NUD*IST is produced by QSR (Qualitative Solutions & Research Ltd.), and distributed by Sage Publications @ www.sagepub.co.uk.

further discussion regarding each of the cases, further addressing the *validity* of the study.

We addressed *generalisability* by focussing our efforts upon analytic generalisability, using a cross-case comparative analysis to generate our propositions to theory (Miles & Huberman, 1994). We set out the way in which we undertook this analysis in due course, before which we discuss our primary research method - interviewing.

4.4.1. INTERVIEWING

As part of the data collection, in-depth interviews were conducted with a range of personnel in each organisation. Initially a decision had to be made as to who within the case-studies should be spoken with as part in the research. It is here in particular that some of the reality facing the researcher becomes apparent. For no matter who the researcher may think it appropriate to speak with, the decision for access remains in the hands of the key staff acting as gate-keepers in to the institution. That said, the likelihood of successful access also rests to some degree with the researcher, in terms of being well prepared for contact with such people by finding out as much about the organisation as possible. Holdaway(1989) makes the point that researching in the Police can be problematic given that research is not usually possible without their co-operation, and in addition he notes that there can be problems in the framing of proposals if the Police do not see some direct relevance to policy issues. In terms of the research reported upon here, gaining co-operation did not prove problematic, perhaps because of the currency of the issue to the Police themselves, and because of a certain degree of novelty in that information technology was something that they were beginning to discuss amongst themselves - to varying degrees. With the Police it was important to follow appropriate protocols for gaining access to the organisation, which meant addressing all requests for access via the chief constable.

It was decided that those involved in the interviews would be those holding the most senior positions, and/or who were concerned with ISS practice. In each case, members of the senior executive, operational senior management, and those involved in the management IS/IT within the Forces formed the interviewees. In all cases, the

researcher adopted a semi-structured approach to interviewing, allowing the interviewee latitude to discuss areas of concern to them as seemed appropriate at the time. The researcher did have a series of topics and questions with him at each interview which he wished to address, and in nearly all cases the interviewees knew in advance what the broad area of discussion was to be. This approach meant that the researcher had a preparatory guide with which to negotiate the interview (McKracken, 1988). Latitude was required in interviews, especially in the early stages of an interview as interviewees quite often seemed to turn the conversation to what seemed to be a pet interest of their's. Where this occurred, this was felt by the researcher to be a useful, and important, means of developing relationships with the interviewees that would facilitate discussions (Stebbins, 1972).

Overall, 182 people were interviewed during the course of the study, some a number of times during the period of research. The interviewees were informed that their views would remain anonymous, as had been agreed with the representative of each case study who served as the initial point of contact. Many formal and informal meetings and discussions occurred during visits to the case organisations, and notes were made following such meetings. Formal interviews varied in length from one hour to 3 hours, and some individuals were interviewed a number of times across the 1994 -1998 period. Sixty two interviews were tape recorded, with the agreement of the interviewee. Where interviews were tape recorded, tapes were transcribed with a copy of the transcription returned to the interviewee for comment. All transcripts were produced by the researcher, which was felt to be important given the importance of the process of transcription as well as the outcome in enhancing an understanding of the data (Silvermann, 1993). For example, where interviewees were laughing, the reasons for such laughter was highlighted, or where interviews were alluding to an object in the room this was incorporated.

Transcribing the tapes personally, was an extremely labour intensive activity although it meant that the researcher stayed close to the data and ensured a consistency in method and notation. Notes were also made where possible during and following each formal interview to record the researcher's thoughts about the interaction that had occurred. Where informal discussions occurred, notes were made as appropriate soon after the event.

One of the problems in such longitudinal studies is that some people change roles, retire and so on. In this study, the situation was exasperated to a certain extent because as Police Officers gain seniority they often move job frequently, sometimes every twelve or eighteen months. This sometimes made repeat contact difficult, although fortunately, in all of the Police Forces the participants in the IT area remained in place throughout the period of the research. People moving job, retiring, losing interest in contributing to the research as they move on, are all factors of such longitudinal research and are a part of the richness of the data, although ensuring sufficiency of data always has to be a priority.

4.4.2. GUIDING ISSUES IN INTERVIEWING

Our approach to interviewing in the case studies has been shaped by four particular issues which have been at the heart of use of this qualitative method. Firstly interviews are considered as conversations, where despite using a topic guide to aid the interviewer in a semi-structured interview format, the researcher must pay attention to both what they say, what they hear, and what they see in the course of the conversation. From this researchers can prepare their responses accordingly. The interview is a complex undertaking because, "interviews are invented anew each time, they can be wonderfully unpredictable. The person being interviewed may take control of the interview and change the subject, guide the tempo, or indicate the interviewer was asking the wrong questions. Sometimes interviewees become hostile; sometimes they become overly friendly, threatening, or flirtatious... Part of the skill of the qualitative researcher is in being able to adapt quickly to a situation that did not go as expected" (Rubin & Rubin, 1995, p.7). Whilst in this case the researcher did not experience this range of issues, the degree of involvement and concentration required is easily underestimated. Not least is the role of the researcher as methodology user (Jayaratna, 1994) who must constantly endeavour to reflect upon their own role and use of methods, in keeping with the focus of a critical hermeneutic perspective where we reflect upon our prejudices and pre-understanding. For all these reasons, the view of an interview constituting a simple question-answer-question-answer exchange is a gross over-simplification.

Secondly, interviews involve exploring shared meanings that people develop as they interact, with the researcher perhaps being required to address a new vocabulary and taken for granted assumptions and understandings of the community being investigated. Hence, to help our understanding we have paid attention to the way in which people describe their world, in particular to stories, symbols and metaphors which people use to describe their experiences (Rubin & Rubin, 1995). Furthermore, we were conscious not to give higher recognition to any one version; because people may perceive the same event differently, we have had to be careful not to dismiss conflicting versions of an event as either true or false. We accepted that they may all have been valid interpretations of events, and yet different. Our role as the interpretive researcher is to make sense of any such contradictions (Myers, 1997). We were also attentive to the status accorded to the data gathered - where we sought to avoid regarding explanations as an absolute truth of what happened, instead acknowledging the socially embedded and situated nature of their accounts (Silvermann, 1993).

Thirdly, we recognised that in interviews participants are partners who share a conversation. While the notion of such a partnership did not always seem to be realised in practice, as for example, when some interviewees seem monosyllabic in their responses no matter how open a question appears, this idea reinforced the need to consider the mutual participation in any such conversation. We were also aware that we should not conduct interviews in directions that interested us at the expense of issues that the interviewees wished to discuss, as in doing this we may have substituted our ill-informed view for their experience based views and insights (Rubin & Rubin, 1995).

Finally, maintaining an awareness of differing agendas on the part of those spoken with was important given that, "depth interviewing can never involve a simplistic 'face value' treatment of data. We had to think beforehand, during and after the interviews about what was, likely to, and had affected the data obtained in the interview and the relationship we were involved in" (Jones, 1985, p.53). Maintaining such an awareness required continual reflection by the researcher throughout the research process, and a certain degree of suspicion about what we were hearing. This emphasised the requirement to look for substantiation across a range of data collected in respect of any one case study, and not merely to accept something as a fact because someone had said that was the case. For example, in one of the case studies a Police officer who had been

involved in the development of IT, time and time again during several hours of discussion on separate occasions stressed their role as the one person responsible for driving a project. Interviews with other people not only failed to confirm this, but revealed an alternative view which was substantiated by several sources of data. The issue was to consider why it was that this individual had articulated a view no-one else agreed with - were they right, were they deluding themselves, trying to mislead the researcher, or perhaps enjoying the opportunity to talk about an area they worked in so much they sought to embellish some of the detail? This highlights two points: firstly, the importance of we as researchers exercising our own judgement; and secondly, the importance of watching what is said as well as listening to what is said in order to interpret the data.

Recognition of these characteristics formed the basis of the conversations with people in our research. The research interviews have been topical (Rubin & Rubin, 1995) in that they have been focussed on the area of ISS formation, looking at what happened, when and why. Thus, the interview as a research method can be a complex method, in which the researcher requires a high degree of awareness, in thoughts and in practice. This latter point reinforces the need for reflection throughout the fieldwork as the researcher must look for weaknesses, omissions, and good practice that could be addressed later in the study.

4.4.3. PARTICIPATION AS PART OF A CASE-BASED APPROACH

A period of participation was undertaken over a period of three months with one of the case organisations. This followed a request from the organisation for us to work with them following interviews. The period involved working within the Police Force undertaking a review of their existing ISS, and helping them to develop a new approach to IS in the Force. This enabled an immersion within the area of study which has not been possible by simply turning up to interview people, or even engaging in less formal conversations at other times.

At the commencement of the period of working with the Police Force, a swipe card pass and a key were provided which gave access to the headquarters building and the

computer suite - an area restricted to IS staff. At one level this seemed to signify a certain degree of trust and acceptance, but at another level we were quite clearly labeled as an outsider by the visitor badge which we was required to wear when in the headquarters building. In addition to such tangible elements of belonging, the researcher always made it quite clear that he was an outsider who was only with the organisation to complete a specific task.

For the researcher ever to have considered himself as anything other than an outsider would in one sense be naive. In another sense though, it is important to recognise that the researcher can not be a totally unconnected reporter of a reality (Silvermann, 1993). Rather, we recognise that the researcher plays a role in constructing the perceptions of the process being investigated; for example simply by requesting to speak to people, or by asking questions of a person one is engaging in the co-construction of a social process which brings issues to the fore which may otherwise have not been addressed. It is the reflection upon our mental construct in such situations that enables these issues to our conscious level of thinking (Jayaratna, 1994).

As a part of this reflective process a diary was kept during the period, with notes taken at or shortly after most interviews. Following day-to-day contact with individuals, observations were recorded as appropriate. This period of working with the organisation required the delivery of a report which formed part of their ISS. The author was closely involved with organisational members as the production of this report required meeting with a wide range of people within the organisation and direct involvement in the ISS formation activity. It was important therefore to develop a sense of distance from the process to enable reflection upon observations and events, while remaining committed to delivering an end product.

4.4.4. MEANS OF ANALYSIS

The analysis of data occurred hand in hand with the fieldwork, in keeping with an interpretive perspective and as advised by other researchers (e.g. McCracken, 1988; Gummesson, 1991; Miles & Huberman, 1994). This enabled us to maintain an ongoing dialectic between the analysis and theoretical work.

In analysing data, a number of works were utilised in considering how to undertake the analysis of data (e.g. McCracken,1988; Silvermann, 1993; Miles & Huberman, 1994, Rubin & Rubin, 1995). The explicit acknowledgement of these contributions, and the setting out of the analytic method is seen as a necessary step in meeting the conduct of qualitative enquiry (Kvale, 1989).

The purpose of the analysis has been to abstract issues from the case material through which we can explain ISS formation across the case studies. The means of doing this was through the induction of themes and concepts in moving towards an overall explanation (Glaser & Strauss, 1967; Walsham, 1993, 1995), using the exercise of power framework discussed previously as the investigative basis. Thus, while the framework provided a guide, it was only a guide; we remained alive to the inductive emergence of other explanatory issues from the data.

The analysis was based around three areas in coding of the data, these being: recognising concepts, hearing stories, and hearing themes. An overview of each of these is set out below in Table 4.3..

AREA	ISSUES ARISING
1. Recognising Concepts	Ideas or concepts through which ISS formation is understood *There is a danger here of researchers imposing their own perspective in an unreflective manner- especially in the assigning of labels, for example in imposing pre-determined analytic categories rather than seeing what is actually emerging from the data. Reflection upon such concepts can be applied to researchers as well as to those researched.*
2. Hearing Stories	In looking for underlying meanings and themes, it can be useful to pick out and analyse stories; i.e. "refined versions of events that may have been condensed or altered to make a point indirectly"(Rubin & Rubin, 1995, p. 231). *The implications of this are that we must consider why such versions may have been refined or condensed: is it embarrassing, is it forbidden or dangerous for them? Therefore, we must attend to both the story itself and to the reason behind the telling of the story.*
3. Hearing Themes	These include: Descriptions of how people do or should behave; provide explanations for how and why things happen in the practice of ISS formation. *We must be wary of developing themes from limited instances within the data, or suggestions from literature. We can address this by remaining sensitive to this happening, and also by looking for themes outside of the investigative framework.*
OUTCOME	*It is the discovery of concepts and ultimately themes that we abstract in developing an explanatory theory. Our determination of what seems to be important is part of the process of interpretation and is judgmental; the researcher's own mental construct is an important factor in this development and hence our attention to making this explicit.*

Table 4.3. Coding Guide (based upon Rubin & Rubin, 1995; p.229-229)

We used the coding guide shown in Figure 4.4.. to help us focus our analysis efforts, and to help us move in a structured manner from data to themes that emerged from our analysis (Miles & Huberman, 1994; Rubin & Rubin, 1995). In undertaking our analysis it was necessary to think about the difference between what happened and what people *say* happened in any given situation. Many actions may not have had any deliberation beforehand, although a person may retrospectively ascribe such deliberation to the action, in line with aims and beliefs that seem appropriate. Indeed, when the notion of conscious and unconsciousness, aim and beliefs, are taken into account then the

complexity of understanding action from accounts may be understood. We consider that it is advisable to look at the causes of action as a complex package of factors, with reasons - as events rather than justifications - being only one part (Doyal & Harris, 1986). With this in mind we note that, "since such causation is totally dependent on both the agents ability and willingness to infer and to act upon inferences based upon such a package, perhaps it is best simply to think of her/him as the cause of what they do rather than overemphasising the causal importance of one of the packages logical contents" (ibid., p. 69).

Thus, in the accounts of action given, we looked at the reasons, aims and beliefs in the context of the culture within which people operate, consciously or otherwise, and the institutional effects that may impinge upon said action. As Silvermann (1993) notes, what we get in such accounts is not necessarily an explanation of what happened; we need to acknowledge and be aware of the embedded, situated nature of such accounts, for example where people may seek to morally justify their own position, or where action may be located within a particular institutional power structure. That is, we need to move beyond letting peoples account, or explanation, stand as the final version of what happened , but to ensure that our rigorous analysis moves behind such accounts. Our process of enquiry into ISS formation through engaging with a framework based around the exercise of power provided one means of doing this, and was particularly useful as we began to code data by encouraging us to move beyond the explanation at face value to examine the rationale behind them.

The coding of data proceeded in a manner which can be described as partly an inductive and partly a deductive approach, although we would argue that it was largely an inductive process. That is, we engaged in a dialectic between literature and analysis, developing our thinking with regard to views of ISS formation, and following the pilot study utilising an investigative framework through which we could consider ISS formation in terms of the exercise of power. We used this framework to help us in interviewing and in the analytic coding. However, we were conscious to remain sensitive to other explanatory issues emerging from the data, and from this dual track approach, we inductively abstracted a series of themes which led to the development of our theoretic explanation.

The coding of data was undertaken using a commercially available computer software package, NUD*IST, initially version 3.0.4, but later adopting version 4. NUD*IST provides a means of managing data, both from interview transcripts as well as from notes of meetings and other data collected during the case study investigation. The software also allowed a rigorous analysis and coding of data, followed by investigation of coding categories, as themes and concepts were refined and developed. The software allowed us to investigate the data in many ways, by using searches based upon within and between category criteria. For example, once we had coded interview data, as an in-category search we could look for all the coded sections where the word power had been used. As an example of a between category search, we could look for instances of people who were working as IT professionals, who were non-police staff, and who had used the word strategy. During coding of the data, coding categories were set up in advance based upon the informing theoretical framework in terms of ISS formation and in terms of power. In addition, a number of themes and concepts emerged during the analysis which formed additional coding categories. In this way the researcher sought to ensure that the investigative framework did not form a straitjacket to coding, remaining alert to the potential of new themes and concepts emerging. Similarly, the researcher remained alert to the use of stories, metaphors and analogies during the coding of data. Preliminary analysis of all of the case organisations occurred as the fieldwork continued, and when data collection in terms of the fieldwork was deemed to have finished, the coding categories were again revised before formal analysis of the data commenced (Miles & Huberman, 1994). A copy of the initial and the final coding categories used are shown in Appendix 1.

Agar (1991) and Coffey et al (1996b) have expressed concerns about the use of such packages in qualitative research studies because of the perception that some researchers were increasingly relying upon the software to do the analysis work. This arose because of two main concerns, the first being the ability of the software to search and undertake autocoding of documents and the danger that researchers would therefore not probe the data in any depth. The second concern was because of the possibility of researchers associating the use of software with methodological rigour; that is, that if they used a piece of software then their methods of analysis must therefore be rigorous. This latter view could lead to a failure to give adequate attention to methods, and hence invalidate results. It is stressed here that in our view the use of such a package is solely as an aid to

the process of coding - a tool, nothing more. As Kelle (1997) notes, "we should address these programs (NUD*IST and similar) as software for data administration and archiving rather than as tools for data analysis" (p.14, sec. 6.3). Thus, such programs are useful as aids in coding and retrieval, but there are dangers in seeing them as theory builders - that is, doing the analysis for us; such tools assist the researcher's cognitive processes, but can never be seen as a substitute for them.

The data analysis using NUD*IST led us through a series of iterations of the coding categories, from which we abstracted concepts and themes until we arrived at a level of understanding which explained the research domain. This led to the development of a conceptual framework through which we are able to explain our understanding of ISS formation through focussing upon the exercise of power.

4.5. SUMMARY

In this chapter we discussed the research philosophy, research methodology and methods adopted. The approach adopted allowed for the development of a rich discussion of the case studies, and the subsequent analysis of ISS formation through focussing upon the exercise of power saw the abstraction of a number of key themes. In the next Chapter we discuss the Scottish Police Service, which is where our case studies have been based, and evaluate the evolution of Information Technology in the Police.

CHAPTER FIVE - THE POLICE SERVICE IN CONTEXT

5.1. INTRODUCTION

The previous chapter outlined the philosophical approach that underpinned the empirical investigation discussed in this thesis. In this chapter we will move on to provide the context to the case study organisations. It is necessary to provide this contextual discussion as a way of adding to the richness of the description, analysis and understanding of the cases (Pettigrew, 1985, 1990). The investigation focused upon five Police Forces in Scotland, and consequently context in this instance refers not just to the legal framework in which and through which Police Forces operate, but also to acknowledge the social, political, economic, and historic issues deemed appropriate in this instance. The chapter is structured as follows: firstly an evaluation of the Police Service in terms of history and organisation structure issues, which leads us to consider structural forms of bureaucracy in the Police; secondly, an evaluation of information technology (IT) in the Police Service.

5.2. THE POLICE SERVICE - HISTORY AND STRUCTURE

This discussion provides an understanding of structure, of social and historic context, and of issues of relevance to the ensuing analysis of the case study Police Forces.

The Police Service as we currently understand it, as institutions comprising a uniformed, disciplined body of people, has been constituted for less than 200 years, although the concept of policing would seem to be an innate condition of any ordered society. The Police, "refers to a particular kind of social institution, while policing implies a set of processes with specific social functions" (Reiner, 1994, p. 716). Hence, here we are concerned with particular institutions that have been labeled as Police Forces, as opposed to the notion of policing as a constituent factor in the maintenance of social order.

In the UK there are 43 Forces in England and Wales, 8 Forces in Scotland, and 1 Force in Northern Ireland. In addition, there are small Forces responsible for geographic areas

such as the Isle of Man, for particular sectors such as the railways, and for industries deemed in need of specific attention such as the atomic energy authority installations. Among what we may consider to be the main Police Forces, i.e. those covering distinct geographic regions, there is a commonality of purpose, although with differences in criminal justice systems between forces in England and Wales, and those in Scotland. Even within national groupings cultural differences between forces have been noted, for example between urban and rural forces (Shapland & Hobbs, 1989), where the style of policing in large urban areas differs from that in the policing of isolated rural communities. The range of duties undertaken by the Police is considerable, from crime-fighting, traffic, public order duties, to dealing with witchcraft and opening tins of pet food for pensioners (Dale, 1994). Given that our empirical investigation is based upon Scottish forces, it is necessary to address the Scottish Police Service specifically.

5.3. THE POLICE SERVICE IN SCOTLAND.

The cases presented and discussed in this thesis represent five of the eight Police Forces in Scotland. The eight Police Forces in Scotland have a combined strength of 14,800 Police officers (as at 31/3/97- Scottish Office, 1997), covering over one third of the land mass of the UK, with a resident population of less than 6 million people. This compares to over 127,000 Police officers for a population of 53 million people in England and Wales.

The Police (Scotland) Act 1967 has provided the basic framework of modern Police powers and responsibilities, subject to subsequent amendment, and reflects the content of the Report of the 1962 Royal Commission from which the duties of the Police in Scotland can be summarised as follows:

- to maintain law and order and protect persons; to prevent crime.
- to detect criminals and, in the course of interrogating suspected persons, play a part in the early stages of the judicial process, acting under judicial restraint.
- to control road traffic and advise local authorities on traffic questions.
- to carry out certain duties on behalf of Government departments - for example, to conduct enquiries on applicants for British nationality.

- by long tradition, to befriend anyone who needs their help, and to cope with any minor or major emergency which may arise.
- in carrying out their work, Police constables work as members of a disciplined force under the direction of the chief constable, although each is expected to act on his or her own initiative and is alone accountable at law for the exercise of his authority. They do much of their work alone and without supervision and they must make decisions based on sound knowledge of the law. Constables are therefore unique in the nature and degree of responsibility they are required to exercise. (Royal Commission on the Police, 1962)

The main differences between Police Forces in Scotland and those elsewhere in the UK are centred upon a distinctive legal system in Scotland, with laws specific to Scotland, and structure based upon the Sheriff's Office, the Procurator Fiscal, and the Crown Office, who form the basis of the prosecution system.

5.4. INSTITUTIONAL STRUCTURES IN THE POLICE SERVICE

The Police Act 1964 and The Police (Scotland) Act 1967 provide the basis for the current structure and running of policing, with the setting up of a tripartite structure. In this, responsibility is shared between the Secretary of State for Scotland, the local Police authority, and the Chief Constables. The operational running of the Force lies with the Chief Constable, although control can be exercised over this individual by the Secretary of State and the local Police authority. Chief Constables are appointed on fixed term contracts, normally of 5 or 7 years duration, and can be said to represent the professional managers and leaders of the Police Service (Horton, 1996).

The Police are a disciplined, hierarchical body with much similarity to a militaristic model. The rank structure in the majority of forces (The Metropolitan Police and the City of London Police being the main exceptions) is as follows: Chief Constable, Assistant Chief Constable, Superintendent, Chief Inspector, Inspector, Sergeant, Constable (in decreasing order of seniority). There are further distinctions to be made in the hierarchy, which reflect responsibility and representation. The two most senior ranks are commonly referred to as ACPO ranks, that is belonging to the Association of Chief Police Officers (Scotland has the Association of Chief Police Officers [Scotland], hence

ACPOS) which represents the interests of all officers at that level. Superintendents, which effectively combines two ranks with ordinary and senior Superintendent gradings, have their own representation and meeting groups, centred around the Superintendents Association (with a separate association in Scotland). All other ranks are represented by the Police Federation (again, with a separate association in Scotland). Thus, not only is there separation in terms of ranks, but also in terms of collective identity and representation.

Within all Forces there is a civilian workforce. Historically, civilian personnel have been employed in the Police to undertake clerical tasks, although increasingly civilian staff have come to occupy more senior roles, particularly in specialist areas such as finance and IT. In some Forces, civilian personnel have come to occupy posts formerly taken by ACPO rank officers, for example at Lothian and Borders, where the civilian Director of Administrative Services post was formerly the preserve of an Assistant Chief Constable. Pressure to civilianise Police posts has resulted from the increased cost of employing Police officers (Horton, 1996), and in the form of advice for Chief Constables to civilianise posts from central government sources through Home Office Circulars (e.g. Home Office Circulars 114/83 & 105/88). By way of illustration, in the Scottish Police Service at 31 March 1998 there were 14,988 Police officers and 4,670 civilian staff (excluding domestic/cleaning staff) (HMIC, 1998, sec.6.1).

Funding in Scotland is provided from a combination of local and central government, with a 49/51% split respectively. Traditionally, budgets have been held and managed by regional authorities, but in 1996 responsibility for financial management was transferred to Chief Constables. Following changes in the allocation of budgets in 1996, to single-line budgets, each Chief Constable is given a specific allocation of funds with which they have to manage for the year. This has been a significant change in budgeting procedures for the Forces, because prior to this finance would be managed by the local authority, with the Chief Constable applying for resources as needed. This has meant that the Chief Constable now has some latitude in managing resource levels.

The introduction of initiatives to introduce a professional management ethos into the Police (Leishman & Savage, 1993) may be hampered by the discretionary nature of Police activity, the reactive nature of Policing, and traditional Police culture (Horton,

1996) Thus, the Police Service have faced a number of challenges over recent years, primarily driven from central government, which have had some impact upon the way they operate, and which have implications for our understanding of ISS formation.

5.4.1. BUREAUCRATIC TRADITIONS AND NEW PUBLIC MANAGEMENT

Police Forces have been experiencing profound change, little of which has been of their own making (Johnston, 1992). This has been due to a combination of political ideology, economic circumstances, and establishment fears about governability of the state (ibid.). In particular, the structure of Police institutions and influences from a variety of initiatives associated with the area labeled new public management are important in providing contextual detail to our considerations of ISS formation.

Police institutions are firmly rooted in the public sector; the vast bulk of their funding comes from public sources, and they perform a public duty in the maintenance of law and order and the protection of life and property. The authoritarian top-down structure of Police Forces has been categorised as highly bureaucratic (Loveday, 1993). Most of the decision making occurs at the bottom of the institutional hierarchy, which reflects the discretionary nature of street-level policing. (Horton, 1996), although leadership and operational policy is firmly the preserve of the senior ranks. The hierarchical nature of the Police Service, with a number of supervisory levels, reflects increasing attempts over the years to more closely monitor the activities of the constable - the command and control of Police activities (Loveday, 1993).

Police Forces have been referred to as bureaucratic (Bradley et al, 1986; Oliver, 1989; Terrill, 1992). For Weber (1947), the notion of ideal bureaucracy incorporated: hierarchy of offices; a career system denoting specific areas of competence and specialisation; remuneration tied to clear contracts, discipline, and control in office; formal rules sets and decisions controlling the administration of organisation. The Police Service can be seen to exhibit such characteristics, although the point of this is not whether or not the Police *are* perceived to be bureaucratic, but rather to what does this concept sensitise us in our analysis. Just as Weber (1947) was interested in the social consequences of this form of organisation, particularly as a form of social

domination (Morgan, 1986), we too are interested in the consequences for ISS formation of the way in which Police institutions are organised.

Research into the Police has suggested that Police institutions constitute a mock bureaucracy (Gouldner, 1954). This means that the perceived formality of hierarchy and discipline masks aspects of informal organisation which undermined any assumptions of control. Others argue that the Police world is typically, "casual, lackadaisical, offhand, ad-hoc and lowly motivated, with a deeply entrenched informal culture of occupational deviance" (Punch 1983: xii, cited by Johnston, 1988, p.52). Hence, while the Police may appear to be a disciplined, ordered, highly structured body operating in accordance with a clear set of rules, there is a degree of discretion in operation which renders such notions meaningless - hence a mock bureaucracy.

In terms of the Police therefore we can acknowledge the view that they can be perceived as displaying characteristics of bureaucracy, but must then ask what this means for our analysis. For this we can turn to the work of Mintzberg (1979), who argues that Police Forces can be considered as control bureaucracies, a derivative of what he calls machine bureaucracy (p. 331). By this he seems to mean that the very fact that the Police are engaged in a form of control means that they are invariably driven towards a configuration that is bureaucratic. We can utilise Mintzberg's (1979) work to consider the nature of Police institutions, highlighting where there is congruence, and where there is conflict with his analysis. In Table 5.1. below we evaluate the apparent structural properties of policing institutions based upon empirical work with the structural elements of the Police Service within Mintzberg's (1979) analysis.

Factors typically associated with Control Bureaucracy	Synthesised views regarding structuring of Police Forces
Simple and stable environments – predictability means that tasks can be routinised and standardised.	Despite the range of Police activities, the context in which they operated was up until recent decades relatively predictable. The Police have a well defined set of operating regulations which govern what should be done given particular situations. As noted above, research work has indicated that Police officers not only have discretion regarding action to be taken (or inaction), but they also exercise discretion as to whether to follow the regulations set down or not.
Mature organisation - has developed standards for operation	The Police are a mature organisation, and do have clearly laid down standards for operation. Despite the adage often expressed by Police officers (from author's conversations with Police officers) that they 'never know what's waiting for them round the corner...' or '...when the phone next rings', in fact, while the circumstances may vary, the nature of the incident will almost always be something the Police have dealt with before, and have clear procedures for dealing with.
Relatively unsophisticated technical systems enable routinisation & standardisation. Hence, no need for specialists to whom power may be delegated, and thus central control remains intact.	For most of its existence the Police have had relatively unsophisticated technical systems, not requiring specialist assistance. Increasingly, specialists are now required to run more sophisticated systems, for example in IT and in finance, with delegation being required away from centre.
External control - which refers not just to control by government for example, but also the exercise of control through public accountability.	As noted, the Police have had a degree of autonomy in terms of operational activity within the tripartite structure. However, as noted already, external control has increased since the 1980s through the activity of the Home Office, the Audit Commission, and HMIC for example. The issue of accountability to the public is a subject of considerable debate (e.g. see Reiner, 1994, pp.742-752) and beyond the scope of this work, except to say that in theory the Police Service are accountable to their communities. It is the control orientation (internally and externally) and need for public accountability that Mintzberg says draws Police institutions towards the machine bureaucracy structure, as opposed to a professional bureaucracy where work is dependent upon the skills and knowledge of professionals, i.e. horizontal specialisation with vertical space to operate.
Provision of non-routine and critical services	In addition to patrolling, and what they term proactive policing duties, the Police do stand ready to respond to events, and hence have detailed procedures for dealing with contingencies.

Table 5.1. A Comparative Evaluation of Structural Issues in the Police Service (Structural factors based upon Mintzberg, 1979, pp.314-347.)

The analysis in Table 5.1. above leads us to the view that Police institutions illustrate many of the characteristics of a control bureaucracy in line with Mintzberg's (1979) assessment. From this we can reflect upon further issues which are important in developing our contextual sensitivity to the domain. Firstly, technological systems in the Police Service have become much more sophisticated over recent years, but the corollary of this is that the Police have been employing more and more civilian staff to

manage these systems. In particular, systems for financial management, and systems utilising information technology have seen an influx of professional, skilled civilian staff into areas up until recently dominated by Police personnel. Whilst the reasons for these changes are numerous, ranging from government pressure to civilianise, to a need to bring in appropriate computer related skills, such changes do raise a number of issues that we can address. In particular, shifts in: authority, responsibility, knowledge, and control, are areas that will be addressed in our subsequent analysis.

Secondly, the reduction of central control over certain key areas of Police institution noted above can also be linked to a general trend towards decentralisation of authority as Forces make greater use of the local command unit structure. This involves responsibility and authority for Police operations in a local command unit being devolved from headquarters to the local commander. Thus, there may well be changes in decision making processes within the Forces which we may have ramifications for ISS formation.

Finally, we note some of the influences that the Police have been subject to, for example: HIMC (Her Majesty's Inspector of Constabulary), the Audit Commission, the Scottish Office. However, the Police have not been alone in receiving the attention of such groups, with the Police Service being seen as one of the last public sector areas to feel the touch of public sector reform (Taylor & Williams, 1992; Loveday, 1993).

The Police, as with other public services from the 1980s onwards, have seen a shift in the desires of the Government, as they have been required to become more accountable to those who pay for public services - notionally the public at large, but more specifically the Government - this representing a new public service focus (Stewart and Clarke, 1987; Jones & Smith, 1993). The Police Service has been subject to numerous Government initiatives with a view to improving the three E's of economy, efficiency, and effectiveness (Taylor & Williams, 1992). This has been particularly evident through the government's rigorous pursual of the financial management initiative, and drive for value for money, issues which have been at the heart of new public management (Jones & Smith, 1993; Barberis, 1998). These initiatives have been driven by government through the Scottish Office, the Home Office, aided by the interventions of the Audit Commission and HMIC who periodically inspect practice in Police Forces.

Such interventions are illustrated through the comments of the HMIC, who noted in a recent annual report that, "Within their own communities, Police Forces are monopoly providers of many of the services they deliver. This makes it vitally important that the Police demonstrate value for money (VFM) in the way that services are provided, and, over the last 2 decades, forces have shown a very positive commitment to this principle. During inspections I see many good VFM initiatives and it is therefore doubly frustrating that not enough effort is made to record them and the savings made and realise them to the same degree throughout every force."(HMIC, 1998, Introductory Remarks). Such comments can be seen as illustrative of the intervention of groups such as the HIMIC and the Audit Commission in policing activity, and such influences have increased the similarity of many aspects of Police management (Horton, 1996).

Some researchers remain sceptical of the success of new initiatives, whatever their source, due to a less obvious facet of Police institutional structure, namely the cop culture, which exhibits an anti-intellectualism with which any new initiatives must contend (Horton, 1996). Furthermore, the militaristic style and culture of the Police is not perceived to be receptive to ideas such as flexibility, service to consumers, or other issues associated with new managerialist initiatives, with the bulk of policing remaining wedded to a task and action orientation (Horton, 1996). Thus, in addition to structural characteristics which are pertinent to our study, we must also remain sensitive to the social relations between groups as well as within institutional settings. The Police Service are governed by statute in what they do, and are subject to scrutiny from a number of government bodies who seek to ensure that all Forces operate in accordance with best practice and to similar national standards. It is therefore of particular interest that in our study several Forces are seeking to develop their own ISS which may appear to be at odds with the quest for national standards.

Within this research, we recognise the concept of bureaucracy as a valuable label, remaining sensitive to the issues which are raised within discussions of bureaucracy, but acknowledging that the social practice of organisation demands that we engage in a more rounded discussion of the area of investigation. Thus, discussions of bureaucracy and of new public management provide a valuable contextual backdrop, and do indeed highlight a range of areas which will inform our analysis of the case investigations, but

they can only be a part of the picture. We now consider another area of contextual significance, that being information technology in the Police Service.

5.5. INFORMATION TECHNOLOGY IN THE POLICE SERVICE.

The potential for the use of IT in a strategic sense has been recognised within the Police Service (Home Office, 1983; Home Office 1993; Hough, 1980), as the former Chief Constable of Derbyshire highlighted:

> "The Police Service is undergoing a period of radical change. .. The key issues in the future will be value for money, operational effectiveness and quality. The strategic importance of IT developments to all three is without parallel" (Newing, 1993, p.267)

We can regard the Police Service as an information intensive organisation in that they are dependent upon effective information systems for the delivery of their service. Given that information is central to the undertaking of Police activities, it is somewhat surprising perhaps to find that the Police Service has only come to address widespread use of IT from the late 1980s onwards. Indeed, concern has been expressed that use of IT in the Police Service is fragmented and unlikely to enhance efficiency and effectiveness (HMIC, 1998, Appendix - comments of the Lay Inspector.) Nonetheless, we note that in Scotland, as in the rest of the UK, Police spend on IT is the second largest source of expenditure after manpower (HMIC, 1998). The Police Service average spend on IT is compared with other sectors in Figure 5.1. below:

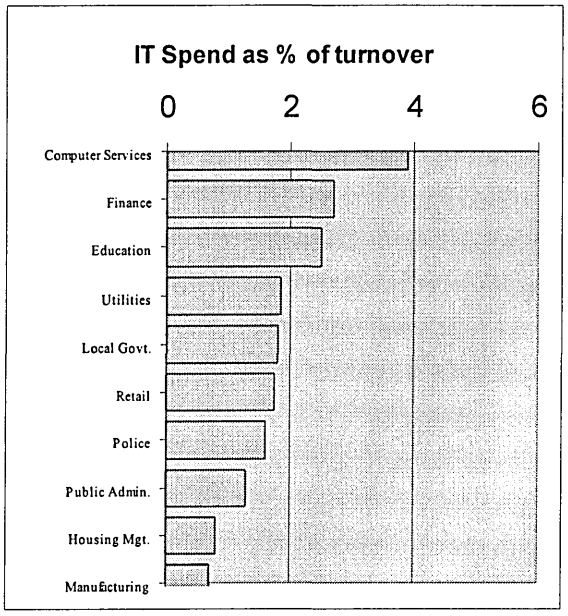

Figure 5.1. Police IT spend average in comparison to other sectors (Kable, 1995, p.25)

In Figure 5.1. above we see that Police average spend on IT at 1.6% is comparable with areas of the public sector, if not unexpectedly someway below sectors such as finance and computer services. Gross expenditure in the Scottish Police Forces for the year ending 31 March 1998 was £709 million (ibid.). It has been estimated that UK forces have an average IT spend of 0.85% of gross expenditure (Kable, 1995), which suggests an annual IT spend in Scotland in the region of £6 million. This figure will vary as additional capital is made available periodically by the Scottish Office for spending on IT, as has happened in the past. Despite the spend on IT within Scottish Police Forces, there is concern about the current situation. The HMIC has noted that recent financial allocations for IT will not aid the enhanced development of effective IT in Scottish forces (HIMC, 1998), and this is part of a general dissatisfaction concerning the level of funding for IT in Police Forces in Scotland compared to those in England and Wales.

In Table 5.2. we analyse the development of IT usage in Police Forces from the 1960s through to the 1990s. Here we highlight the socio-politico context to IT development, highlighting also some of the governmental and managerial impetus for IT developments.

Years	Political/ economic environment	Public Management	Impetus for Computing Innovation	Computer Solutions	Impact
1960s	Full employment; Social class/party alignment; Mass production & mass consumption	Bureaucratic and administrative emphases; Expanding resource base.	Financial Accounting; Payroll management.	Local authority mainframe and batch processing; very limited remote access.	Cost savings; Management improvements in central services – personnel & finance
1970s	Rising unemployment; Social class/party de-alignment; Economic decline; Trade union challenges.	Bureaucratic and administrative emphases; Professionalising; Tensions with Police authorities.	Police independence; New efficiency demands.	Separate developments of Police computing installations; New wide area networks supporting command & control systems and other resource deployment systems.	Improvements in human resource management.
1980s/ 1990s	Peaks in unemployment.; Industrial change; New patterns of social unrest; De-unionisation; Flexible production & consumption patterns emerging; enterprise culture; information economy and information society.	Bureaucratic and administrative emphases; New organisational groupings emerging; Concern with 'customer accountability'; New public management.	Demands for improved efficiency and effectiveness in policy; value for money initiative; single-line budgets.	Office automation systems; management information; wider range of applications e.g. HOLMES; Some forces reintegrate their computing with local authorities to effect cost savings.	Development of information and organisational strategies; Releasing human resources from administrative tasks.

Table 5.2. IT development in Police relative to socio-political context: (based upon Taylor & Williams, 1992, p. 49.)

The main issues that arise from Table 5.2. are that as the Police are increasingly being asked to make much greater use of IT, so they are also being asked to justify the use in terms of increased efficiency, effectiveness and economy. There are two further issues to be addressed here. One is that at the same time however they have found themselves having to take full responsibility for both the running and development of IT with the withdrawal of local authorities from such provision. The other is that this increased

focus and increased responsibility has come at a time when budgetary responsibility has been shifted from local Police Authorities to Chief Constables. All of these issues make the place of ISS all the more important. The historical overview of IT issues in Figure 5.3. help situate our understanding of the context surrounding IT in the Police Service and from which we can now move on to an analysis of the case studies.

5.6. SUMMARY

In this chapter we have discussed some of the social, political, and technical issues that form part of the context to ISS formation in the case studies. We have sought to highlight some of the key issues which will inform our subsequent analysis, in particular: the way in which the Police Service is embodied and enacted through a legislative and regulatory framework, and within which researchers have observed increasing similarity between Police Forces. It is against this backdrop, that people within individual Police Forces are engaged in ISS formation, that is, thinking about strategy for their own Force. The perceived bureaucratic structure of Police Forces can be set against the concept of mock bureaucracy at work. Finally, we noted that the Police Service can be thought of as information intensive, and yet against that the relatively recent desire to make more widespread use of IT. It is against this backdrop of regulation, perceived bureaucratic structure, and relative immaturity in the widespread use of IT, that we investigate the concept of ISS formation, and in the next chapter we discuss the case studies of five Police Forces.

CHAPTER SIX - ISS FORMATION: CASE STUDY A

6.1. CASE A POLICE FORCE

Before discussing case study A, it should be noted that Chapters Six to Eleven inclusive discuss specific case study findings of ISS formation in five Police Forces, and of practice surrounding the formation of a National ISS for the Scottish Police Service, which forms a sixth case study. In addition to our discussion of each case, we will abstract issues from each case study. At the end of each chapter we will highlight some key themes drawn from across the case studies. An analysis of these themes from our cross-case analysis and generic findings from the research will be examined in Chapter Twelve.

It is worth noting that in all of our case studies, the hierarchical role structure of the Police is as follows:

- Chief Constable
- Deputy Chief Constable (abolished in 1994 as a distinct rank, after which the Chief Constable appoints an assistant Chief Constable who may act as a deputy [Sheehy, 1994])
- Assistant Chief Constable
- Chief Superintendent
- Superintendent
- Chief Inspector
- Inspector
- Sergeant
- Constable

When we refer to these ranks throughout the case study Chapters, we will be implicitly reflecting their position in this hierarchical structure.

Each of the case studies are structured as follows: Firstly, we discuss the background to the Police Force, and secondly we discuss ISS formation in the case study. Following this we will present our analysis of the case study which we have undertaken with reference to the theoretical issues discussed in Chapters Two and Three. Finally we will summarise the case study by abstracting key themes for discussion in Chapter Twelve. The identity of each Force has been made anonymous as far as is possible, this having been agreed with the individual Forces as a condition of access for fieldwork. We have also preserved the anonymity of individual contributors throughout as agreed with the participants in the research.

The fieldwork for this case study was initially focused upon the setting up and operation of an IS/IT Strategy Board, which was formed in 1993, and which was disbanded in 1998. During the fieldwork we incorporated discussion of historic events associated with IS in the Force as it became apparent that these were important to our understanding of ISS formation. The Board was responsible for developing and overseeing IS/IT strategy in the Force, and provided a meaningful focus for our period of engagement, this being a prerequisite for validity in Case study research (Pettigrew, 1985a; Yin, 1989). In the course of our research 16 different members of staff were interviewed, many on several occasions. This was in addition to informal discussions with these and other people during the period of fieldwork.

6.2. BACKGROUND TO THE CASE STUDY

Case A Police Force is one of the smaller forces in the U.K., responsible for policing an area of 1016 square miles in Scotland. The population of the area covered by the force is relatively sparse, totalling approximately 275,000, which with around 1,000 people per hectare making it some way below the average for Britain of 2,500 per hectare.

The Chief Constable, is responsible to both the Secretary of State for Scotland and to a local Joint Police Board for the running of the Force. It is the Joint Police Board and the Secretary of State who oversee the provision of budget which was £31 million in 1997. The annual budget for IT amounts to approximately 0.6% of the overall Force budget (Kable, 1995), although in 1997/98 a projected budget of £175,000 was reduced to zero because of financial pressures within the Force. The allocated IT budget has been

supplemented on several occasions with extra money which has been made available by either the Joint Police Board or the Scottish Office for IT.

Policy for the Force is published each year by the Chief Constable in the form of an annual report, which details key aspects of policing over the preceding twelve months, and also sets out a public statement of purpose for the forthcoming year. This statement of purpose comprises a mission statement and six objectives, which remained unchanged from 1991 to 1998. The mission statement and objectives for Case A Police Force can be seen in Appendix 2. These remained in place throughout the period of the research.

6.3. INFORMATION SYSTEM STRATEGY FORMATION

It was in 1974 that the Force were said to have first begun to utilise computer technology when a link to the Police National Computer (PNC) was established. Also in the mid 1970s, an experiment took place with a vehicle availability computer system, which cost the force in the region of £30,000 and was generally regarded to have been a disaster. According to several senior officers, there had not been any attempt to consider strategy for IT at that time; the perception of Officers spoken with who had knowledge of the events suggested that a decision was taken to buy a computer system because many other Police Forces were experimenting with IT and the Chief Constable at the time did not wish his Force to be seen to be lagging behind. However, even during the 1990s, the symbolism of this failed system still resonated strongly among senior Officers. It was not so much that the system had failed to live up to expectations that was the problem being expressed here, but rather the perception that being associated with the development of IT could have a negative impact upon an Officer's career.

Some of the lessons of this early failure with IT were said to have been learned when in 1978 a link was established between the Force and the local authority mainframe system, also in Stirling, to handle crime offence recording. This was said to be the first implicit consideration of ISS, although this terminology was not recognised as being used at that time. The approach to IT development during the 1980s was described as ad-hoc, and piecemeal, and while it was said that there was no explicit discussion of

strategy at this time, equally, there was not seen to be a policy in place to guide the development of IS in the Force.

6.3.1. A NEW CHIEF CONSTABLE & ABC

In 1990 a new Chief Constable was appointed, and it was with the arrival of this person that an increased emphasis was given to the potential usage of IT in the Force. The new Chief Constable was perceived as someone who had a strong interest in IT, and this was commented upon by all those interviewed. Senior Officers in the Force were aware that the new Chief Constable had been responsible for introducing IT into the previous Force with which he had worked, and presumed that the same would happen in this Force. The arrival of the Chief Constable had an immediate impact in relation to IT, as one of the senior officers noted:

> "... and I have to say that many of us were quite shocked by some of his radical views on matters particularly in association with technology, and the fact that he conversed as someone with knowledge, which we'd never been used to, because we'd only been used to talking to people outside.".

The new Chief Constable had previously worked in another Scottish Police Force, where as a Superintendent he had been given responsibility for a project to implement a new control room for the Force. It was from this project that his own interest in computer based IS had developed, and indeed in the application of technology more broadly in policing. During this time, he was said to have established a relationship with a software firm, having run a pilot scheme with their software in his previous Force. This company had developed a database system which built around a free text search engine, and it was the ability to link and search free text that was thought by both the company and the Chief Constable to be particularly appropriate to a Police application.

At the time of the new Chief Constable's arrival, the IT situation was described by several people as being totally uncoordinated in terms of development, purchasing, maintenance, and funding. Shortly after his arrival in the Force in 1990, as there was no policy in place for IS/IT the Chief Constable ordered a review of IS in the Force, with a view to developing an ISS for the Force. This review was undertaken by one the Police Officers responsible for IT, and when delivered one month later made a series of points, which were:

- That the existing IT infrastructure had developed in a random fashion, and while they had standardised on IBM PC's, no standard existed for software, with many custom built applications having been developed using a range software products.
- There were no data standards in the Force, with variance in the form in which data was held, and also considerable duplication of data.
- The various systems were not linked. Consequently there was no ability to share or search data across applications (irrespective of the lack of data standards).
- Most people in the Force were unaware of either IT applications that existed or data that was held outside their own functional specialism (for example, in CID, Traffic Department, Scenes of Crime, etc.).
- There was no policy for either IT or IS.
- The conclusion was that the Force should start again with IT.

The review was submitted to the Chief Constable, who agreed with the observations, and with the conclusion. In February 1991 the Chief Constable asked the Officer who had undertaken the review to develop a strategy for a new IT infrastructure for the Force. The strategy was drawn up by this Officer during the next month in an approach that was described as "high level strategy, very conceptual". This was regarded by senior Officers as an ISS for the Force, and as being the first time this had been considered within the Force. The document was submitted to the Chief Constable in the form of a two page briefing report, and the main issues raised were as follows:

- The rationale for a new system was to make all data collected by the Force available to and searchable by operational Officers on a 24 hour basis.
- To develop a corporate database model based upon core applications that will enable the capturing and searching of data associated with every event and person dealt with in the Force.
- To put in place a Force-wide IT network using established, robust technology.
- To establish Force-wide data standards.
- To train all staff in the use of the new system..

The Chief Constable agreed with this synopsis, and authorised the IT Officer to draw up a more detailed proposal, working in conjunction with both the Chief Constable and one other senior Officer, who was responsible for non-operational aspects of the Force, which included IT. During the next two months, discussion of the new system was

confined to these three people, although two presentations to other senior and middle managers took place to communicate aspects of the proposed system. The meetings held in developing the new system were not minuted, and took the form of informal discussion between the three people, normally on a weekly basis. These were not described as strategy meetings, although retrospectively those involved considered themselves to have been involved in developing ISS during these meetings. In addition, the IT Officer met with the Chief Constable at irregular intervals to discuss aspects of the system as and when issues arose which required discussion. This represented a level of access to the Chief Constable beyond that apparent for other Officers. This can be better appreciated when we consider this in relation to the particular organisational role structure in place at this time, seen in Figure 6.1. below:

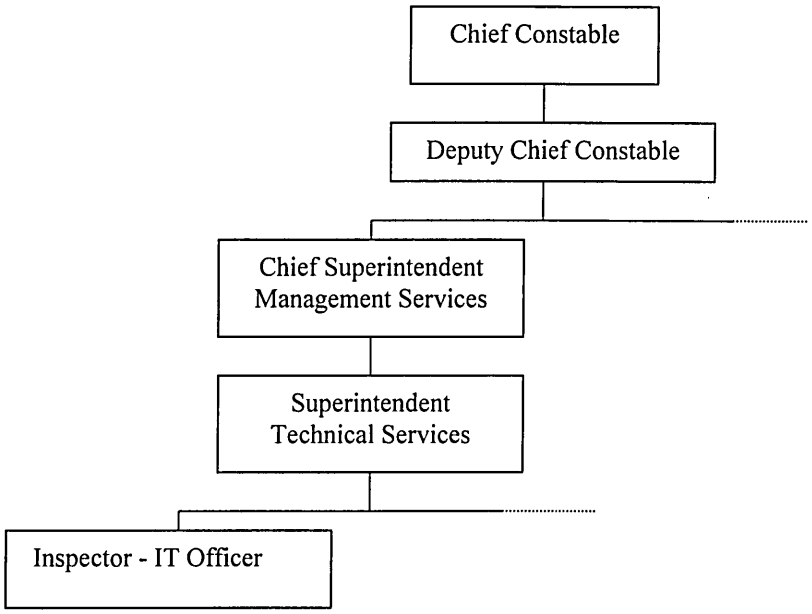

Figure 6.1. Formal IS/IT Reporting Structure - 1991

As a result of these discussions, it was proposed by the Chief Constable and the IT Officer that a relationship be established with the company with whom the Chief Constable had liaised when at his previous Force. The purpose of working with staff from the software company was to investigate the feasibility of using their free-text search engine technology as the basis for a corporate database system. As a part of this process, a group of senior Police Officers were taken to offices of the software company in East Kilbride, Scotland where their technology was demonstrated.

Following discussions between the Chief Constable, the IT Officer and staff from the software company, in May 1991 a 4-man project team was established by the Chief Constable to work with the supplier company in developing a specification of a new system, a team which included the IT Officer. The IT Officer, in conjunction with a Chief Superintendent and the Chief Constable then worked for the next four months drawing up an outline proposal for a corporate database system. This group met regularly, often each week, with the meetings being informal and undocumented. In August 1991 a business case for the proposed system was completed, for the dual purpose of presenting this to senior Officers and to the local authority Police Committee. In addition an operational requirement was developed, in partnership with the software company, for a corporate database system networked throughout the Force. Together, the business case and the operational requirement constituted what was regarded as the ISS. However, the requirement was not documented within the Force, but rather it was left to the supplier to maintain records of the requirements.

In December 1991 an invitation to tender based upon the operational requirement developed was published in the Official Journal of the European Union, and a contract was awarded to the software company to supply hardware, software and a network for the Force in May 1992. There was never any doubt amongst those involved about who was to be the supplier of the system, given the relationship that the Chief Constable had previously established with one particular company. The Chief Constable described the process to adopt the chosen technology as follows:

> "Well I came in with a view that we needed a database that everybody had access to 24 hours a day, and I was aware of the technology through my previous force where I'd been deputy, and I'd run a pilot scheme with [the supplier], .. and I was aware of it's capabilities. However, I didn't come in and say we've decided to go to [the supplier], I took the senior management people to East Kilbride and let them see it and they came back saying 'we've got to have that, we've got to have that'. So, we just developed on from there, and we did a competitive requirement, and we got a contract laid with [the supplier]."

The decision to install a new system Force-wide required additional funding to be obtained, as there was no provision made in the budget for such a development. The Chief Constable made a request to the Police Committee at one of the regular monthly meetings for funding from the local authority to cover the cost of the system. After a few weeks of deliberation, this request was granted, with the proviso that the new system had to be in place before the end of the financial year on 1 April 1993. This put

in place a deadline for implementation of the system. As a result of the deadline, it was decided by the Chief Constable, the IT Officer in conjunction with the supplier, to implement the system across all of the main divisional and sub-divisional stations in the Force in one go.

The system went live across all the major stations in the Force at 11pm on 31st March 1993. Other stations were added to the system over the next six months, so that by the end of 1993 all operational Police Officers in the Force had access to a system terminal. The new system was named ABC (N.B.: not the actual acronym for the system; changed for anonymity purposes), with a free-text searching software engine acting as a front end to the existing databases. The system was installed, and by mid-1993, the system consisted of an X25 network, a central Sun Sparcserver 670, and 4 Sparc stations. This supported 350 terminals, most of them dumb-terminals, across the force. By the next year, there were 450 terminals across the Force area, from any one of which a user could access the ABC system.

Initially, the ABC system encompassed 18 distinct applications, although this had risen to almost 40 applications by the end of 1995. The range of applications were said to have been derived by the project team from existing policing processes, including: the recording of crime, the production of crime reports (and later, the electronic transmission of reports to the Procurator Fiscal's office), traffic accident recording, information passed to the Police regarding crime or other activities, recording of custodies, recording of lost property, with criminal intelligence being added in August 1993, and other applications following this.

The initial ABC system cost approximately £900,000, of which about £550,000 was for hardware including networking. While the bulk of this was funded by the local authority, in 1994 the Scottish Office made a further £500,000 available at the end of the financial year to assist the Force in their IT developments, which enabled the Force to move from text based terminals to PC's across the Force through which to run ABC. Between 1995 and 1997, the existing system was developed and maintained from within the Force IT budget, although in 1998 this budget was withheld to allow for spending on other commitments in the Force.

According to several of those Officers involved in the development of the ABC system, the intention behind the system was to ensure, "that everyone could have access to, that was running 24 hours a day", where, "everything we did would be in the corporate database". It was not possible to verify this with documentation, as it was claimed that none existed; either that discussed such intentions or which set out intended strategy for the system. Nonetheless, the ability to capture data about all incidents that the Police dealt with and to make that data available in a readily searchable format to Police Officers provided a facility unmatched by other Police Forces in the UK at the time. This ensured that the Force, and the Chief Constable in particular were the subject of several articles in newspapers and IT trade press (e.g. Gooding, 1993; FT 26/8/93; Computing 9/12/93), as well as receiving visits from many other Forces in the UK who wished to see the new system.

Up until the ABC system was introduced, the thinking about ISS was said to have been focussed upon the development and implementation of the system, with no ISS documentation having been produced within the Force beyond the business case and the operational requirement. In developing the corporate plan for the Force as a whole, all members of senior management, that is, those holding the ranks of superintendent and above, were consulted. This involved each member of senior management preparing a plan for their department, together with objectives, and submitting that to the centre. The corporate plan for the Force was drawn up following discussion of those plans with the senior managers. The involvement of senior management in the Force in relation to ISS was limited to having proposals presented to them at a meeting early in 1991. This approach was justified by one of the Officers developing the proposal for ABC as follows:

> "The general thought process in this Force when we started was that ... well, the general opening statement to the business case to senior management was that we're going to present this thing to you, we'll outline the concepts and the general business case of how we see it working out. We will take on board your observations, but unless those observations are reflected in the vast majority of the workforce, your observations will be discarded, because in five years time none of you, or very few of you will be here working with the system, ... it will be middle management, junior management that will be occupying your position in five years time, and what we don't want to happen is that in five years time somebody says, 'who the fuck put this in?'.. 'oh well it was so and so'... 'where is he?'.. 'oh he's retired'.... No!"

Several of the senior Officers in the Force said that they perceived the proposal presented to them as a fait accompli. Equally they said that as it was seen as being driven by the Chief Constable, who was not only 'knowledgeable about IT' but who also was in command of the Force, then it would happen almost irrespective of their views. At the same time, this was not viewed negatively by those senior officers, who were quite aware of the role of the Chief Constable in deciding upon the new system:

> "It's his influence, no question about it, I mean he's right into technology and he's been the driving force ... but that's easy because if you are the Chief you can do that. I mean it's not difficult, there's not a lot of consultation involved in it. It's one of the good things we have over industry."

6.3.2. THE IS/IT BOARD

Following the implementation of the ABC system, in May 1993 a visit was made by the HMIC who was said to have commented that he was concerned at the lack of apparent use of any project management methods in the development of ABC. Following this, a meeting was said to have been held between the Chief Constable, the IT Officer and a Chief Superintendent to decide how to respond to the criticism of the HMIC. They decided to form a project board along the lines of the PRINCE method, which they had been advised to use by the HMIC. Three weeks after this meeting, in July 1993 an IS/IT Board was set up in line with the notion of a Project Board from the PRINCE project management method (CCTA, 1994), ostensibly to oversee the ABC project. However, there was also a desire amongst many senior Officers that IT developments in the Force needed to be monitored more closely by people separate from the ABC project. This resulted from two principal concerns that a number of senior officers shared: firstly, that there had been too little consultation by the relatively small project team with other staff in the development and implementation of ABC; and secondly, that the advent of ABC had brought about a period of change which had been unforeseen by most people, leaving many Officers of the view that they had tried to do too much too quickly. Whilst the project team regarded the ABC system as an unqualified success, most other Officers regarded the system as containing many flaws when implemented, which they spent the next two years trying to have addressed through the IS/IT Board.

The IS/IT Board comprised a small group of Police officers who were chosen by the Chief Constable, and was chaired by a Chief Superintendent from the senior

management team. The membership of the IS/IT Board was kept separate from the membership of the ABC project team as the Chief Constable wanted the IS/IT Board to be seen as being independent from the development of ABC. The mandate of the IS/IT Board was, "To assume responsibility for monitoring and authorising all computer related developments in the Force for the approval of the Chief Constable" (IS/IT Board Minutes, July, 1993). The relative position of the reporting structure in terms of IS/IT in the Force can be seen in Figure 6.2. below:

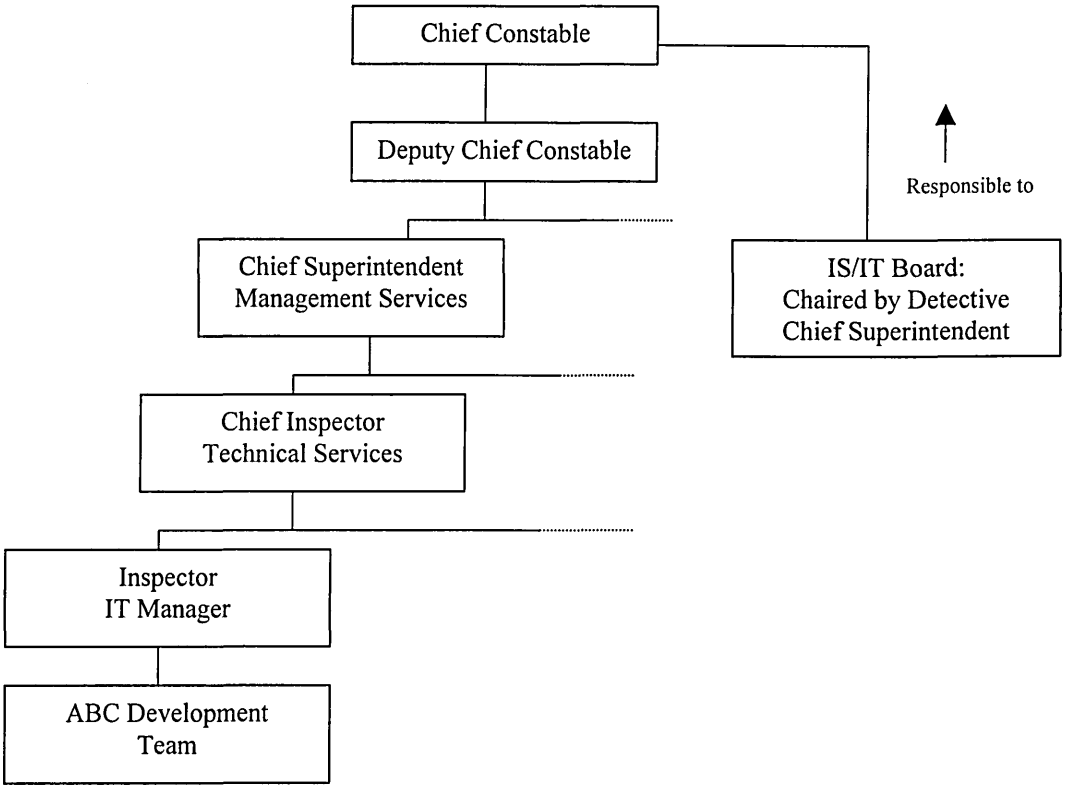

Figure 6.2. Position of IS/IT Board relative to IS/IT Reporting Structure - 1993/1998

All requests, suggestions, and intended developments of IT in the Force were now to go to the IS/IT Board, which met at three monthly intervals. In addition, at the first meeting of the IS/IT Board in July 1993 it was agreed that one of the responsibilities of the IS/IT Board would be ISS. This was not necessarily to be the drafting of an ISS, but rather to have responsibility for ISS in the Force. According to those present, this responsibility for ISS was regarded as incorporating evaluation, prioritisation and authorisation of developments to the ABC system. This included acting as a conduit for requests,

overseeing acquisition, development, and delivery, and being responsible for the maintenance of standards. Furthermore, part of the role of the Board was to assess new ideas as they became apparent, and to consider the appropriateness of such developments for the Force, taking into account operational need and budgetary implication. The group were referred to in the Force as the 'is it' board, and views of their effectiveness varied. On the one hand there were those who felt that the Board lacked independence as they were being fed by those with more hands-on responsibility for IS, namely the ABC project team and the Chief Constable. On the other hand, other views were expressed saying that the Board were very much responsible for developing ISS in the Force through a process of consultation across all Departments.

The IS/IT Board were viewed by all those spoken with as a central component in the development of ISS in the Force, although none had ever seen an ISS document published within the Force. Nonetheless, several senior Officers surmised that the existence of the IS/IT Board was in itself sufficient as it symbolised a commitment to IS to all staff in the Force. A number of senior operational Officers said that they regarded the IS/IT Board as merely a rubber-stamp for what the Chief Constable wanted to happen. The IS/IT Board continued to meet throughout 1994 and 1995, during which time they considered many suggestions for amendments and developments to ABC. Indeed, issues associated with the ABC system formed the entirety of the agenda for the IS/IT Board during 1994/1995. This according to those attending the meetings was developing and managing ISS.

During 1994, the notion of ISS was recognised by most people spoken with as something that the Force now had, which compared markedly with the situation before the new Chief Constable arrived when there was no apparent interest in IT, let alone an attempt to consider strategy. However, most people were unable to say what the notion of ISS comprised beyond being the monitoring and development of the ABC system. It became apparent that when people discussed ISS, what they were talking about was the ABC system, it's development, implementation, and operation. This view prevailed throughout the course of the research. Similarly, those few people who were particularly involved with IS discussed ISS in terms of prioritisation of applications for, and development of, ABC. The lack of a written ISS within the processes encompassed by the IS/IT Board was regarded as beneficial because of the flexibility that this allowed,

> "I mean the strategy itself, we know has to be not so much part of an iterative strategy but a completely flexible strategy. Part of the problem of strategies is it takes so long to get the bloody things in place that to try and adhere to it two years down the line you're cutting your arm off because you say 'I cannae use that 'cause it's not in the strategy and we've agreed that the strategy cannot be altered'. Not quite."

The common view of those spoken with was that the concept of strategy only came to be considered by Police Forces in the early 1990s following the publication of a series of Home Office circulars (e.g. Home Office, 1983, 1993) and Audit Commission papers (e.g. Audit Commission, 1990, 1993) , together with the increased attention being given to issues of strategy during inspection visits by the HMIC. In particular, there was increasing referral during visits by the HMIC to strategy for IS as representing best practice, and this concept came to appear with regularity in HMIC reports (HMIC, 1992, 1996, 1997, 1997a, 1998, 1999). The combination of these factors was referred to by many senior staff as a key factor in stimulating awareness of and debate about the concept termed strategy, not least in the area of IS given the growing recognition of the importance of IS, and the cost .

In 1995 several senior Officers were unhappy about the lack of a documented ISS, however they felt unable to do anything about it. They were particularly concerned by the prospect of the Chief Constable leaving to take up another post, which in their view would mean that the strategy would be in jeopardy should the next Chief Constable not approve of it. While they were pleased to have a system in place that worked, they were of the view that the IS/IT Board should be more proactive in developing a documented strategy, although they saw little sign of that happening. By this they meant that there was nothing written down that expressed what it was that was supposed to be being achieved with IS, where IS was going, or what the timetable was. Those closely involved in the IS developments in the force, that is on the ABC project team and on the IS/IT Board acknowledged that the pace of IS developments had meant that they had not produced an ISS plan as such, but that they preferred to maintain a verbal agreement, and consequently a shared understanding (as they saw it) of ISS. In August 1995 the ABC team became known as the IT department, and the IT Officer was officially designated as the computer manager.

During 1996, the IS/IT Board continued to meet bi-monthly, although some meetings were postponed due to operational commitments of those involved. The meetings that took place were focussed upon suggested developments to the ABC system, and discussion of the impact of other developments, in particular the Scottish Police ISS (SPISS), and the Integrated Scottish Criminal Justice Information System (ISCJIS). The former referred to the development of a National ISS for the Police Forces in Scotland, while the letter referred to a Scottish Office project to encourage IS compatibility and communication between all elements of the criminal justice system. Development of both of these systems was ongoing at this time. However, as the ABC system was established in the Force, it was decided to wait and see what emerged at the end of the respective processes rather than to start attempting to alter ABC to fit in with whatever may be thought to be likely to emerge.

The IS/IT Board operated in the knowledge that the IT budget for the Force had been reduced from an expected £110,000 to £60,000. The change to a new budgeting procedure in all Scottish Police Forces, in 1995 meant that Chief Constables received their budget at the start of the year which had to cover all eventualities. In 1997, the intended IT budget of £150,000 was first reduced by 50%, and then cut to zero by the Chief Constable in consultation with the Finance Manager, as a result of financial pressures elsewhere in the Force, in particular the need to purchase new vehicles.

The result of these financial adjustments meant that in 1997, the IS/IT Board met less frequently, once a quarter, but had become largely redundant in the eyes of those participating, as they knew that there was no money to develop IT. ISS in the Force remained undocumented. In March 1997 Her Majesty's Inspector of Constabulary (HMIC) undertook an inspection of the Force. In the report which followed this inspection, the HMIC was highly critical of several facets of the IS operation, namely: the lack of a documented ISS, the failure to have a clear framework for project management, and the remaining presence of a Police Officer as computer manager (HMIC, 1997). In addition, the HMIC was surprised that there was no business plan for the Force. These criticisms were received by the members of the IS/IT Board and the ABC team with some scepticism. As far as the IS/IT Board and the ABC team were concerned, there was an ISS, it just was not written down. Equally, they were of the view that given the success that they felt they had had with the ABC system, their

project management although not following any method must have been fairly good. Similarly, the criticism of the non-civilianisation of the IT manager's position was regarded as pointless given what they regarded as their successful implementation of the ABC system.

However, the IS/IT Board and the Chief Constable decided that they must be seen to be addressing the criticisms made by the HMIC. In 1997 October the Chief Constable authorised two senior officers to draw up a business plan for the Force, and the IS/IT Board and the IT department was asked to submit its intentions into this process. However, the view of this within the IT Department was that the IS could not be submitted until it was known what the other parts of the business intended to do. In April 1998, the IS/IT Board, in consultation with the IT department and the Chief Constable decided that no development should be undertaken of the ABC system, other than that required for maintenance. The reason for this was that with the ongoing development of SPISS, it was decided that those responsible for IT should wait to see what emerged from SPISS with a view to aligning future systems with it as and when they felt it was appropriate to do so. By July 1998 the ISS had not been documented, and it was at this point that the IS/IT Board was disbanded following the retirement of the Chief Superintendent who chaired the Board.

6.4. DISCUSSION

In seeking to understand ISS formation at Case A Police Force from the evidence that we have obtained in undertaking the case study we argue that we are dealing with ISS formation processes which are embedded in a broad stream of organisational practice (Mintzberg, 1978; Johnson, 1997). Whilst we have seen explicit discussion of ISS, it is also apparent that in addressing why, what, and how of ISS (Earl, 1989) there are a range of other issues which lie outside formal processes such as those of the IS/IT Board. We must therefore also turn our attention to these associated issues if we are to grasp the intricate socio-political nature of ISS formation (Waema & Walsham, 1990). In order to draw out themes which we have found to be important for our understanding, we undertake our analysis of the case in terms of our investigative framework discussed in Chapters Two and Three, using web model analysis (Kling, 1987) to structure the section.

6.4.1. INFRASTRUCTURAL AND HISTORIC ISSUES

In this section of the analysis we focus upon technological issues; structural issues; and historic commitments which are embedded throughout the case. However, we are not just concerned with what technology is present, or what the goals are for such technology usage, but rather we are concerned with issues such as who the key actors are, what kind of things they do, what influences their actions, and what issues, organisational or otherwise, constrain their activities relative to ISS formation (Kling, 1987). We can characterise the systems prior to 1990 as being: unconnected, from multiple vendors, lacking in standards, process specific, small in scale and scope (e.g. PC-based database; departmental), and relatively unsophisticated in terms of nature and potential for development. The lack of an integrated system together with a perceived under-investment in IT within the Force led several people to see these as the factors which were the most significant in triggering the decision by the new Chief Constable to review IS in the Force. This in itself is evidence of the impact that the arrival of a senior figure can have upon ISS, a feature which has been noted elsewhere (Walsham, 1993; Sillince & Mouakket, 1997).

Although frustration was voiced that those who introduced ABC had not been aware of the scale of organisational change, it was generally perceived that the investment in IT would ultimately be to the benefit of policing. Furthermore, Officers took pride from their perception that the Force was viewed as a leader in IS within the Police Service in Scotland, if not in Britain, which illustrates the symbolic nature of the system, and the way in which people socially construct meaning.

The symbolism attached to what was described as a disaster in purchasing a system in the 1970s, can be seen as a situation where IT can be seen as a subjective phenomena, and which also illustrates the symbolic role that IT can have in organisational situations (Scarborough & Corbett, 1992), whereby people socially construct meanings based upon their perception of events (Berger & Luckman, 1967). Such symbolism suggests that the impact of IT in social settings, essentially the arrival of technical artefacts, can have profound effects upon the meanings that people subsequently construct. This association of meanings with IT, or in this case the application of IT in an IS, brings to our attention the view that IT artefacts become active social actants (Latour, 1995) from which people

derive meanings, meanings which in this case 'outlived' the IT. By this we mean that the IT becomes a part of the collective social setting, and is perceived to have a history and social consequence which becomes part and parcel of the objectified social meanings (Berger & Luckman, 1967) of the organisational setting. This is illustrated by the views of many of the staff who commented on the system, for example:

> "it was an absolute disaster and did not work, so people got their fingers burned ... and the then Inspector was getting most of the blame. Whether it was the system that was intrinsically wrong, whether he should have spotted it, whether it was a lack of ability of foresight I've no idea .... I'm just glad it wasn't me".

The meanings that some Police Officers socially constructed from this application of IT encapsulated issues surrounding negative career impact, project risk at individual and organisational levels, poor planning, and a lack of Police expertise in relation to IT. Certainly in this instance, we see IT being regarded as more than just technological artefacts (Latour, 1995). The development of such views form a part of the mental construct (Jayaratna, 1994) of those individuals, and which then becomes a part of how they see the world, whether at a conscious level or not (Morgan, 1986).

A further point is raised by the schema developed by Ackroyd et al. (1992) for classifying computer based IS in the Police service. They developed three categories, to which we have added a fourth as a result of the evidence of this case study, and which is shown below in Table 6.1.

Classification	Features	Example
1. Basic record and support services	Technical systems which support basic, back-office, processes.	Payroll, accounts, document processing;
2. Work facilitation systems	To support specific and specialised aspects of operation - bound to a specific and tightly specified task	PNC (stolen vehicles checks etc), SCRO (wanted, missing persons etc)
3. IS to manage and direct police activity	Hybrid systems combining administration and operational functions; often present an over-simplified model of policing	Command & control; crime reporting, resource Allocation
4. IS to support analysis and investigation	Systems which either operate independently or which utilise data across systems; support unspecified and unstructured analysis, *not* bound to a specific task	Criminal intelligence (in this case based upon free text searching); GIS (linked to crime recording, & to corporate database)

Table 6.1. Revised Classification of IS in Policing (Developed from Ackroyd et al., 1992, p.147-8)

Table 6.1. demonstrates the perception that IT is increasingly being utilised to support analysis and investigation, which represents a new development from the work of Ackroyd et al. (1992). The ABC system was viewed as being an example of this new usage of IT.

While money was made available within the Force for the ABC system, with further unplanned funding becoming available, as when £500,000 became available at short notice from the Scottish Office in March 1994, the changes in budgeting arrangements in April 1995 led to budget cuts which had an impact upon the context within which ISS formation occurred. The control of finance, and withholding of budget can be understood as an exercise of power (Markus & Bjorn-Anderson, 1987) in terms of the management of resources by the Chief Constable who held the budget, although people perceived it to be the act of the civilian Finance Officer, which caused resentment amongst the IT staff.

At all times through the period of study, the IT area was managed by Police Officers. At the same time, the position was regarded by the HMIC as being occupied by a Police

Officer, and hence one to be civilianised irrespective of the experience of the incumbent (HMIC, 1997). This was reportedly a point of contention between the Chief Constable and the HMIC, and could be seen as a point of interaction in the mutual exercise of power through the management of resources.

Finally, we can note that despite having a mission statement and some objectives throughout the period of research, there was no documented business strategy for the Force during the same period. The failure to explicitly consider ISS in relation to business strategy was criticised by HMIC (HMIC, 1999). Not only was there said by those in the Force to be no documented business plan for those thinking about ISS to address, they also said that in their view there was no evidence of an awareness of a need to think through the rationale behind the application of IT; that is, consideration was given to what was wanted without much attention to why beyond a desire to help operational policing. A link between ISS and business strategy is seen as being important (Brady et al, 1992; Earl, 1993; Atkins, 1994; Galliers et al, 1994). However, we must reflect upon the relative immaturity of ISS practice in this case study, for example, according to most of those spoken with, the terms strategy and ISS were not widely used in the Force prior to the 1990s. Managers within the Police Service have been under increasing pressure to turn their attentions to matters of efficiency, effectiveness, and economy (Taylor & Williams, 1992), of which the language of strategy is seen as an integral part (Lynch, 1998). This brings to our attention the relations with agents such as the Home Office whose actions are discussed in Section 6.4.2.4., which forms part of our discussion of social relations.

6.4.2. SOCIAL RELATIONS

In considering the impact of social relations upon the practice of ISS formation, we identify a shifting power configuration relative to ISS formation from *Autocracy* to *Instrument* (Mintzberg, 1983). We set out the facets of *Instrument* in Table 6.2. below.

Characteristics:	**Perceived as shift: *Autocracy* to *Instrument*:**	**Evidence:**
External Coalition (EC)	Dominating (having been passive)	A group of influencers operating through governmental remit, if not explicitly in concert; Increase in activity of HMIC, audit commission, SPISS; funding linked to initiatives (e.g. best value from ISS); external coalition seems to have become dominating after being passive in relation to ISS.
Internal Coalition (IC)	Bureaucratic, but having had personalised element.	Discipline based hierarchy; ultimate authority of Chief Constable. IS/IT Board set up to satisfy perceived bureaucratic expectation of external influencers.
Apparent Power Relationship	EC ==> IC (IC increasingly controlled)	IC initially dominated ISS (subject to funding approval), but eventually impact of SPISS, HMIC led to ISS reflecting EC.
Implications	Replacement of one dominant influencer by another	ISS for ABC initially controlled from IC led by Chief Constable, but eventual lack of finance led to suspension of ISS, & over time perceived impact of HIMC, SPISS, CCJIS, led to halting ISS efforts.

Table 6.2. Power Configuration Analysis (based upon Mintzberg, 1983)

One of the primary findings of the analysis in Table 6.2. is the apparent shift over time which we noted in the power configuration from *Autocracy* to *Instrument* (Mintzberg's, 1983). The internal coalition, led and personalised by the Chief Constable, was initially dominant, and as they led the development of ABC the external coalition could be described as passive. Nonetheless, funding for ABC was gained at the behest of the external coalition. However, after the initial system was successfully installed, ISS formation was perceived to have stopped in the light of limits in funding. Furthermore, perceptions of the role of the HMIC in commenting upon ISS, and of the increased support for SPISS by the Scottish Office was eventually said to have led to decision for ISS formation on an independent basis for the Force to stop. The implication is that once ISS formation becomes dominated by the external coalition, it becomes extremely

difficult for internal coalitions to shift to another power configuration (ibid.) - even if they want to.

We now move on to discuss themes that have arisen from the case with regard to social relations, and which have developed as a result of our analysis of ISS formation

6.4.2.1. Importance of Roles in ISS Formation

The role of the Chief Constable and the authority that this position is perceived to carry has been a significant factor in ISS formation, and the use of this authority is an example of the exercise of power (Markus & Pfeffer, 1983) through the management of resources. The authority of such a role can be thought of as an example of the objectivation of knowledge whereby "the externalised products of human activity attain the character of objectivity" (Berger & Luckman, 1967; p.78). This provides evidence of the dialectical nature of social reality, in that the products of human subjectivity can be accorded the status of objectivity, especially in organisational settings. However, we must remain aware that such objectivity does not attain a state of ontological reality, but instead remains an essentially social construction which will be perceived differently by various people. We can consider this an exercise of power through the manipulation of resources in relation to a position of authority, and to perceived expertise. The authority that the rank of Chief Constable carried with it meant that this person was able to manage resources in several ways to influence outcomes: in deciding budgetary allocations for the IS area; in obtaining funding from the Police Authority for the initial development of ABC; in appointing particular staff to the ABC project team, and to the IS/IT Board; in deciding the company that would be the lead supplier for the ABC system, albeit that other senior Officers were invited to go and see a demonstration of the software before agreeing with the decision.

In this case though, it was evident that it was not just the role, as denoted by authority associated with a rank, that was significant in influencing what happened, but also perceived levels of interest and knowledge that were factors. The authority inherent in the role of Chief Constable may have been why there was evidence of a reluctance on

the part of other Police Officers to question the developments being proposed, for example as one senior Officer observed:

> "I think the Chief Constable was pushing it that much that there was a general fear of anyone daring to criticise wonderful ABC .. the all being all speaking machines. I think there was a reluctance initially, but of course you hope that these Officers, who are Police Officers who are developing the system, would have got it right in the first place. But unfortunately they didn't".

Such comments highlight not just the effect of role of the Chief Constable in influencing the project, but also the reluctance of other senior Officers to speak out. Perceived authority is only one aspect of what we have found in terms of role, as the interest of the person and the perceived level of expertise also appear as factors. The perceived level of expertise in IT of the Chief Constable, and the apparent interest that he had in IT acted in two ways. It was not so much any actual level of expertise, but rather perceptions of expertise that appeared to be important. For example, ".. the Chief eats, drinks, and sleeps IT.." and, "... I have to say that many of us were quite shocked by some of his radical views on matters particularly in association with technology, and the fact that he conversed as someone with knowledge ..". Thus, while the level of authority associated with the role was unquestioned, the ability of the Chief Constable to influence what happened should also be considered in terms of the perceived level of expertise and level of interest. This combination of characteristics enables individuals to exercise *voice* (Hirschman, 1970) - those people who actively seek to effect outcomes, which according to Mintzberg (1983) marks out those able to act as influencers in organisational settings. While the holder of such a role may be able to influence changes, the role of Chief Constable is at the same time one that reinforces institutional norms within the Police Service (Hunt & Magenau, 1993). It was noticeable though that the Chief Constable was seen as a pivotal figure in relation to the success of the project, which led many to fear his departure, for example:

> "If the Chief Constable disappears tomorrow there'll be a void because increasingly [IT] has become his baby and he is evolving that in a very much hands on direction .. that doesn't normally happen in the Police Service may I tell you ."

The difference between the role of Chief Constable and that of the IT manager, also a Police Officer but in this case with the rank of Inspector, was noteworthy. The latter was also perceived as someone with expertise in IT, and for this reason was able to exercise power through this expertise, for example in providing expert opinion to the IS/IT Board

on many occasions. However, the level of this person was that of middle management, and this person was not able to exercise authority directly over other managers within the Force. However, he was able to exercise authority vicariously through being closely associated with the Chief Constable, particularly in situations of upwards influence (Ansari & Kapoor, 1987). Such association can be seen in this way as a means of affecting perceptions of an individual's potentiality (French & Raven, 1959) - that is, the potential to influence. For example, in presenting the intention to develop ABC, the IT Manager was able to effectively ignore the more senior ranks of Officers who comprised the audience and to articulate the proposal which was received as an effective fait accompli.

6.4.2.2. Structures and Processes in Relation to Decision Making

A further aspect brought to our attention relating to the exercise of power through the management of resources concerns the IS/IT Board. This Board constituted a membership which varied between six and eight people of varying ranks, but mostly from middle and senior management, and which was chaired by a Chief Superintendent. The IS/IT Board was vested with authority to decide what happened with IS, and where money was to be spent on IT - they were given the task of managing ISS. At the same time, whilst they did this, many other Officers perceived that the IS/IT Board was fed by the Chief Constable and the IT Manager. If we consider the exercise of power through the management of processes, this would seem to be evidence of such an exercise, with the process surrounding ISS being managed through the setting up of the Board. Whilst the members of the IS/IT Board were adamant that they were independent in the execution of their tasks, the perception of many of those spoken with was contrary to this. We see here the management of access to and participation in decision making processes (Hardy, 1994). In addition, the IS/IT board could be seen as exercising power through the authority given to them by the Chief Constable, by allocating funds, and through taking decisions about IS developments.

In considering the exercise of power through the management of processes the role of senior management in the Force is worthy of further consideration. The arrival of a new Chief Constable represented a change in one figure in the senior management team.

Other members of this team expressed the view that whilst the drive for IT came exclusively from the Chief Constable, there was concern that while there was some opportunity for debate, few of the senior Officers were prepared to engage in debate. Other views expressed were that the senior management were effectively presented with a fait accompli, that they had little choice but to accept the proposals put forward. The reasoning behind this was that there was a desire that the IS should reflect the views of those staff who would be working with the system, and not those likely to be retired before, or shortly after, the system is in place. One reading of this situation would seem to be that such people were likely to hamper IS developments, or at best have little to offer in terms of informing development as they may have left the Service before the system is fully implemented. On the other hand, the effective by-passing of many of the senior Officers may have marked a desire to not allow their opinions to be taken account of in the decision process. Either way, in 1992 and 1993 the management of decision making processes surrounding the ABC project could be seen to be continued in the lifetime of the IS/IT Board whereby decision making was managed within the confines of the IS/IT Board. We also have to bear in mind the possibility that the most visible decision makers are not necessarily the most powerful (Hardy, 1996), and in this case we were told that the members of the IS/IT Board were appointed by the Chief Constable.

6.4.2.3. Perception and Meaning

At all times we are concerned with perception, as it is this that is central to the views that we have of what we take to be social reality. However, we can also think about the manipulation of perception as a means of bringing to our attention further aspects salient to ISS formation (Clegg, 1975; Chaffee, 1985). For example, in 1997 the Chief Constable argued in a public document that there was a positive relationship between the improvement in crime figures, detection rates, and the increased spend on IT from the early 1990s (Case A Annual Report, 1997). This can be seen as a means of legitimating the spending on IS within the Force, both for an audience external to the Force as well as internally. The way in which groups can seek to legitimise their demands through the manipulation of perception has been noted by Pettigrew (1979). This use of a symbol can also be thought of as a means by which the Force executive could endeavour to legitimise their request for increased funding from the Scottish

Office following an unfavourable budget allocation in the preceding year. It is interesting to note that the detection rate in fact rose from 45% in 1990/91 to 55% in 1991/92 which was actually before the major investment in IT.

We have already mentioned the symbolism surrounding the IT disaster of the 1970s, although we should note that in this instance symbolic meaning developed over time without the active participation of anyone in seeking to render symbolic meaning to that event. In the case of another example of symbolism related to ISS formation however, we see that the appointment of the Chief Superintendent to lead the IS/IT Board was done deliberately to show that symbolically not only was ISS being taken seriously within the Force, but that also that the process was not being driven solely by the Chief Constable. This was decided by the Chief Constable in concert with two other senior Officers and the IT manager in an effort to signify the importance being attached to IS in the Force, but was also an attempt to illustrate that senior Officers were closely involved in the ISS focus. Equally, this act was also an attempt to demonstrate to the HMIC that ISS was being addressed within the Force. Similarly, we found that people perceived the Force to be a leader in IT, which could be seen as rendering a subjective, symbolic aspect to IT. We can consider the exercise of power in terms of the manipulation of perception where such symbolism is made use of in the actions of people, for example where the Chief Constable uses the symbolism of a Force that is advanced in the use of IT with reduction in crime figures.

This brings us to another aspect of manipulation of perception, which concerns the use of language. None of the interviewees thought that the word strategy was even a part of the vocabulary used within the Force prior to 1992. Language can be viewed as an important aspect of the manipulation of perception (Morgan, 1986; Choo, 1998), and has also been recognised in relation to ISS (Bloomfield & Coombs, 1992; Jones, 1995). The introduction of language that used the term strategy in relation to IS was seen as being an attempt to demonstrate the seriousness with which IS was now being addressed. In this case, the role of senior officers was considered to be influential in shaping a degree of interest within the organisation in developing IS, and in particular in affecting the perceptions of other people where senior management were seen to actively engage with IS (Levine & Rossmoore, 1995).

6.4.2.4. Relations with other Agents

A number of people recounted that the notion of strategy in the organisation at large was a relatively new concept in the early 1990s, and while it represented a new terminology, it was in their view merely new terms for what they had always been doing, namely, forward planning. The perception was that they were now expected to use the terminology of strategy as a result of pressures from other sources. This leads us to reflect upon this use of language in another way, as an exercise of power through manipulating perceptions of agents external to the Force. Such agents are in turn brought to our attention when we consider the exercise of power through the power of the system. For example, the HMIC, the Audit Commission, the Home Office and the Scottish Office were consistently mentioned as driving a desire to talk about strategy in the Force. It was not so much that they felt that they were being told to talk about strategy, but rather that there were pressures to be more business-like in the operations and management practices. The concept of strategy was seen as being part and parcel of being more business-like. The following view expressed in 1995 was echoed by several senior Officers,

> "Its no different to things that have happened in the past... And like every other good business, what we're being forced to do now which we weren't before is measure our effectiveness at the end. I rather suspected that there were strategies formed before but nobody ever revisited them to say well that was successful wasn't it, or by Christ that one went right down the tubes, but why? It might have been mentally thought through when you're lying in your bed, you know just those few fleeting moments when you went to sleep but you never actually committed it to paper later on... others can learn from that."

In 1997/98, the development of strategy was still being raised by the HMIC during inspections as something that senior management should be addressing, in relation to IS as well as to the business at large. Hence, throughout the period of IS development in relation to the ABC system, there was an increasing awareness of ISS in a conceptual sense amongst the people involved, rather than in terms of detailed plans. This was not so much reflected in documentation, but rather it was reflected in discussion and action as the project was developed, ISS formation as a pattern in a stream of decisions and actions (Mintzberg & McHugh, 1985).

The combined presence of what were seen as governmental groups, such as the Home Office, the Scottish Office, and the Audit Commission, was instrumental in shaping the

views of senior Officers regarding the concept of strategy. Continual reference was made to these bodies in discussions about strategy, and ISS in particular. The role of the HMIC in conducting and reporting upon inspections was another key factor. The role of these bodies can be considered in terms of the exercise of power through the manipulation of perception (see Table 3.1). We can see the visits from the HMIC as a ritual, through which norms of best practice are encouraged, as demonstrated for example in the declarations of written ISS, and the use of project management methods as being best practice (HMIC, 1999). The establishment of such cultural norms should not be seen as a one off event (Pettigrew, 1985a), but rather a part of an ongoing process of construction and reconstruction of social practice in organisational settings (Berger & Luckman, 1967; Giddens, 1984; Reed, 1992). This applies also, if less frequently, to the Home Office, Scottish Office, and Audit Commission. The release of Papers and Circulars can also be seen as a part of the ritual of the shaping of practice, the exercise of power through the manipulation of perception.

In addition, we can also understand the actions of these groups through the exercise of power in terms of the manipulation of perception, through the use of language, in this case the use of the language of strategy in relation to ISS (Audit Commission, 1993; Home Office, 1993, 1994; HMIC, 1993, 1998, 1999). Many of those people spoken with referred to the change in the use of language that had occurred following the release of papers and circulars from the above agents.

In considering what happened in terms of the exercise of power through the power of the system, a number of aspects relevant to our understanding of ISS formation in this Case are evident. The organisational actions and decisions with which we have been concerned took place against a backdrop of culturally accepted norms and political power relations which were being exercised irrespective of the actions of those in the Force. For example, the series of inspections by the HMIC, the reports of the Audit Commission, the issuing of Home Office Circulars (referred to above) were all part of the cultural traditions and structures within which the people in the Force operated, and which appeared to be accepted by all those spoken with. Nonetheless, such structures influenced the progress and nature of ISS formation. For example, the IS/IT Board was set up with a view to being able to illustrate to the HMIC that ISS was being addressed.

Equally, the statement regarding crime figures and IT were to reinforce a case being made to the Scottish Office for extra funding.

Finally, we noted earlier the acceptance of structures of authority in the Police Force. Such culturally specific norms and values can be seen as a part of the system of power relations (Foucault, 1980; Clegg, 1989) against which ISS formation took place. For example, it can be seen as the acceptance of such norms that indicated that when the Chief Constable is said to have suggested that something should happen in a certain way, it did, as with the choice of the supplier. Similarly, the development of ABC continued apparently unquestioned because there were said to be only Police Officers involved who had been appointed by the Chief Constable, as was noted,

> ".. and it was taken for granted that because these people were police officers, put there by the chief, and because they were computer aware, that they would resolve the situation, and the danger was ...it was the emperor's new clothes".

Such views were evident of the acceptance of certain cultural norms, in this case that fellow Police Officers would sort ABC out, and that if the Chief put them in place they would do a good job. The acceptance of such views represented a further aspect of power that influenced ISS formation, but in this case the exercise of such power cannot be traced to a relational situation, except the relationships that people are embedded in by participating in the social world (Hardy, 1994).

6.5. SUMMARY

In this case study, ISS formation was perceived to be closely related to the ABC system, which was successfully developed and installed. While applications arising from ISS formation were regarded to have slowed after 1995, we have highlighted the increased domination by the external coalition, and we have categorised ISS formation in terms of a shifting power configuration from *Autocracy* to *Instrument* (Mintzberg, 1983). The implications of this are a diminishing role for internal influencers on ISS and an increasing external influence. That said, we have also discussed four themes which we have identified as being important in our undrstanding of the generative forces affecting ISS formation, and in particular the analysis has discussed the exercise of power in relation to all four conceptualisations outlined in Table 3.1.. We now move on to discuss case study B.

CHAPTER SEVEN - ISS FORMATION: CASE B

7.1. CASE B POLICE FORCE

The fieldwork for this case study was initially focused upon the practice surrounding the strategic decision to develop a Force-wide system from scratch, a system subsequently known as the JKL system (N.B.: not the actual acronym for the system; changed for anonymity purposes). The practice surrounding the decision to implement the system was notionally completed in 1995, although the project itself was not completed until 1998. As with all of the case studies, we have investigated historic events associated with IS in the Force as it became apparent that these were important to our understanding of ISS formation. The development of the JKL project provided the focus for our period of engagement, this being a prerequisite for validity in Case study research (Pettigrew, 1985a; Yin, 1989). In the course of our research 15 different members of staff were interviewed, many on several occasions between 1994 and 1998. This was in addition to informal discussions with these and other people during the period of fieldwork.

7.2. BACKGROUND TO CASE STUDY

Case B Police Force is situated in Scotland, centred upon a major city which is where the headquarters is located. To undertake Policing duties, the Force has a budget of £62 million (for 1997/98, compared to £50 million in 1992/93). During 1997/98 there was an authorised staff establishment of 2,065 people, 1,222 of these being Police officers, for a population in the area of just over 514,000.

The annual budget allocated to IT grew from £300,000 (just over 0.5% of the total budget) in 1991/92, to £1.2 million in 1993/94 (over 2% of budget) - the bulk of which was provision for capital expenditure, before falling again to just over £400,000 in 1997/98.

Policy for the Force is published each year by the Chief Constable in the form of an annual report, which details key aspects of policing over the preceding twelve months, and also sets out a public statement of priorities for the forthcoming year. There was no published mission statement or series of objectives, but the published priorities to which efforts were to be targeted remained the same between 1994 and 1997, and these were: Domestic Housebreakings; Drug Abuse; Road Traffic Accidents (Case B Police Force, 1994, 1995, 1996, 1997).

7.3. INFORMATION SYSTEM STRATEGY FORMATION

Up until the early 1980s, the only computerisation in the Force was the use of the PNC and a crime recording facility linked to the regional authority mainframe. In 1983 an investment was made in what was termed a command and control system (known as CAPS - Computer Assisted Policing System) - essentially a system for incident and resource management. This was a mainframe based system which also provided a message switching facility for the Force. While perceived as a successful use of IT for the Force, it was generally felt that the acquisition of the CAPS system represented a desire for the Force to be seen to be using IT, although there was no policy as such for either acquiring or using IT. This system remained in use for incident logging and the management and deployment of policing resources up until 1996.

The CAPS system was said to have been acquired and implemented by a team of six Police Officers led by a Superintendent, although the general perception was that the system had been the choice of the Superintendent alone, someone who had been seen as a dominating personality and a keen exponent of the use of IT. One of the comments made by many staff in relation to that system was that the system had been implemented without sufficient attention being given to what was required, and that as a consequence the system had never provided what was really required. A common metaphor used was that the tail was wagging the dog in that the system was shaping operations rather than being driven by, and fitting with, operations. One of the reasons for this was said to be that too little, if any, attention had been given to considering the business case for the system. Instead, there had been a desire by the Superintendent leading the team to 'go out and get a command & control system' and implement it, which is what happened.

At the same time as the CAPS system was introduced, the Force employed the first civilian member of staff to work in the IT area, as the senior systems analyst, responsible for designing a network and maintaining the CAPS system. In 1987, this individual became designated as the IT manager, and was joined by two other civilian IT staff.

Aside from the use of IT to link to the Scottish criminal records office in the mid-1980s, computing was not developed much further. By 1991, the IT staff had implemented 20 stand-alone personal computers which were located in various stations around the Force. These PC's had been distributed in response to requests by Officers around the Force - there was no policy guiding these developments.

In March 1991 a Police Officer was appointed to a position in the Management Development Unit, but with a partial responsibility for IS in the Force. This person expressed the opinion that at this time, following the adoption of the command and control system in 1983 there had been a level of stagnation in the use of IS which needed to be addressed. He submitted a brief report to the Chief Officers setting out two main proposals for IS in the Force, which were:

- To develop an integrated Force-wide computer network
- To study the feasibility of developing Force-wide computer applications to assist operational Policing

Following discussion by the senior management group, the Chief Constable, Deputy and Assistant Chief Constable, authorisation was given to develop a network over a three year period, although it was specified that no computer applications were to be developed during this time. The reasons for the decision not to develop applications were not made clear, although one particular interpretation was evident amongst the people spoken with which was that the senior Officers in place at the time were not interested in IT Whatever the case, the point being made was that at that time in the early 1990s, there was a perception expressed that no-one at senior levels was particularly interested in IS, and hence little happened. There is some evidence to the contrary though, in that resources in the form of Police personnel were appointed to the IS area, and authorisation was given for a network development.

Just prior to this, in November 1990, evidence of a lack of co-ordination in the IS area was made apparent when one Chief Superintendent, not connected with the IS area, commenced a project using thirty hand-held computers. The Officer said that he made the decision because he was frustrated that the Force seemed to be getting left behind in the use of IT. This can be said to reflect a concern for improving Policing in the Force through the use of IT, and also a desire to affect the perception of the use of IT in the Force relative to other Police Forces. After three years of little use, the hand-held devices was abandoned following consultation with the deputy Chief Constable who favoured investigating the use of mobile data terminals in vehicles.

In January 1991, the same senior officer who originated the idea for hand-held computers then started a pilot scheme to allow some officers to telephone in the details of road accidents to a central point for input onto the mainframe system which was being used for the CAPS system. While this saved Officers completing a paper report, the system represented the idea of one individual who was in a position of authority as opposed to a developed policy of any kind. A bespoke application was written that allowed for the recording and analysis of road accident data, and this remained in use until 1996.

By the start of 1993, a specification for the new network had been drawn up with the assistance of consultants. In April 1993, while the network project was ongoing, a new appointment was made to the Force senior management group, at the level of Deputy Chief Constable. This individual came to the Force with a reputation as someone with a keen interest in IT having been associated with an IT Department in his previous Force. Following announcement of the appointment, but prior to his commencement of duty, at his request an overview of IS was sent to him. This overview was carried out by a Chief Inspector who oversaw the IT Department. Upon arrival in the Force, the Deputy Chief Constable's changed the timescale for the installation of the network, reducing it from three years to one year. In addition, at the end of May 1993 the Deputy Chief Constable ordered the IT Department to prepare a specification to acquire a range of IT applications with a view to transforming the IS capability of the Force. The aim was to acquire off the shelf applications as far as was possible in order to reduce delay in

implementation, and cost, as far as was possible. At this time the organisational role structure pertaining to the reporting structure for IS/IT is as shown in Figure 7.1. below:

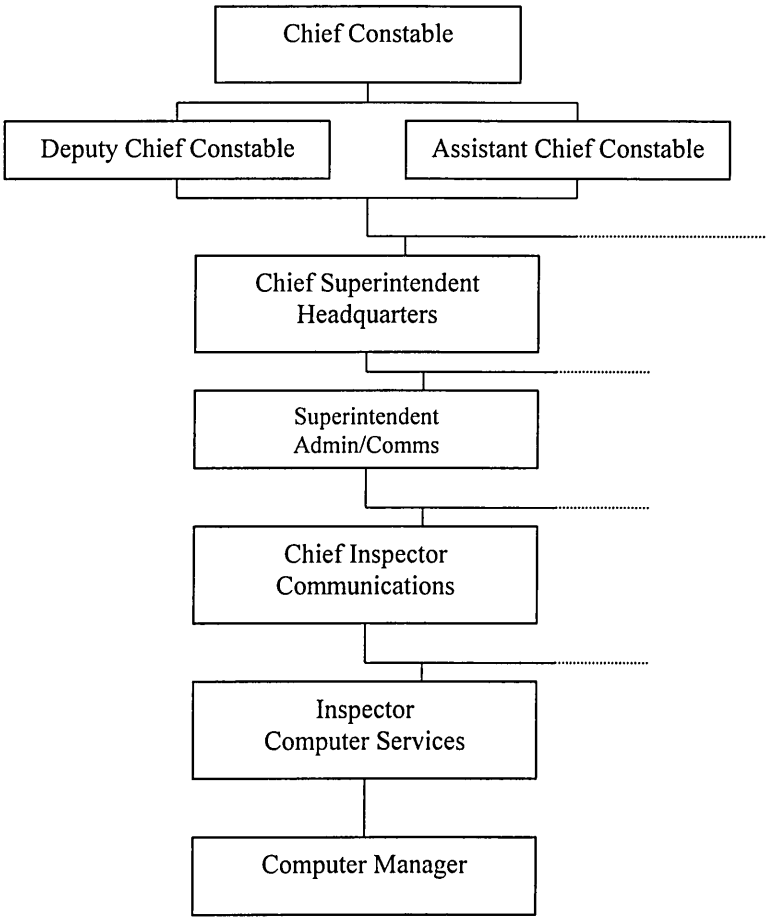

Figure 7.1. IS/IT Reporting Structure - 1993/1997

As we can see from Figure 7.1, in effect the IT department, which although having a civilian computer manager was in fact managed by a Police Chief Inspector, was separated from the senior executive level of management by three Police ranks.

At the meeting in May 1993, the Deputy Chief Constable was said to have referred to the need to have a strategy for IS in the Force. The development of an operational requirement for a new system was seen by those involved as just that, the development of a strategy. An operational requirement was drawn up by a group consisting of the Chief Inspector Communications, the Inspector Computer Services, and the Computer Manager. This group were in continual contact with the deputy Chief Constable, both through formal fortnightly meetings, but also through informal discussion on a

sometimes daily basis. This informal communication took place more frequently between the Deputy Chief Constable, the Inspector and the computer manager, and it was these three people who were perceived to be the main people responsible for developing the specification, which was termed within the Force as an operational requirement. This operational requirement was nonetheless couched in broad terms, and did not give detailed requirements beyond the application title. The rationale behind this was expressed as follows:

> "give the expert the problem and let him come up with the solution, don't give the expert the solution because you will get what you asked for."

The operational requirement was a three page document, and contained the following information (Case B Police Force Computer Applications Operational Requirement, 1994):

- A Summary of the limited extent of existing computer systems; this included a statement that installation of the new system would be expected to commence by mid-March 1994
- The Applications Required; namely: crime recording, custody handling, crime intelligence, crime pattern analysis, personnel, duty rostering, productions, stores admin., mobile data, "various small database applications", firearms admin., traffic accident recording, command & control, property, MIS, GIS, forms handling, PNC interface
- Priorities for the new system, which included the installation of the first four applications in the above list, the personnel system and the command and control system.
- A review of the existing system and network
- A statement of Strategic Requirements, as follows:
- Presentation - a GUI interface with common look & feel across applications
- Performance - response time to critical transactions of under 2 seconds
- Availability - Maximum availability for year round service; minimum housekeeping with no impact upon performance; resilience against failure
- Platform - UNIX; must be possible to enhance systems, share data, access multiple applications on one terminal.
- Network - TCP/IP

- Standards - incorporate *de facto & de jure* industry standards, and data standards of Scottish Criminal Justice System
- Commodity products - off the shelf rather than bespoke.
- Finance - lease basis over 5 years, with first milestone being 15/3/94 to allow the first payment in the financial year

In August, the operational requirement was finalised and published in the form of an Request for Expressions of Interest in the European Journal. This formed the basis for what was to be termed the JKL project.

7.3.1. THE JKL PROJECT

After notifications of interest from 14 companies, a shortlist of two companies was developed by the four people who had worked on the operational requirement. Following a final series of discussions and presentations during November and December 1993, a partnership agreement was reached with a supplier, who in February 1994 were appointed as the lead supplier for the JKL project. The nature of the contract requires some explaining, because this was seen as being a contributing factor to these delays. When in 1993 the decision was taken to acquire a comprehensive IS, the operational requirement set out the current situation in the Force together with what was required in broad terms. As one person involved in this process commented,

> "we deliberately left it open so that when we are in the phase of the project where we are ready to look at what personnel system, we can then say 'right, what is the best that is round just now', and not say 'well four years ago we signed up to get that and really it has been overtaken .. so we tried to keep our options as flexible as we possibly can .. not without heartache because the industry has found it difficult, they want to speak about deliverables and signing off parts of the contract".

In their final presentation the chosen supplier stated that they would provide Best of Breed systems in each of the application areas specified on the operational requirement. While the documentation from the unsuccessful bidder clearly specified the systems that would be supplied in detail, that from the other bidder did not. So while the documentation from one bidder was preferred by the Police team to that of the other, on an overall assessment of the marking criteria used, the latter narrowly won the contract.

The criteria used had been developed by the Police team, and included:

- Cost and mode of financing
- Range of applications able to supply (from existing off the shelf, from other parties, from new development)
- Nature of applications
- Documentation
- Timescales
- Expertise
- Experience & track record

The outcome of this decision was to prove interesting however; because in using the term best of breed, and not specifying in detail the systems to be supplied, the supplier provided the Police team with an area for debate - which is what they did. Thus, rather than specifying what was required in precise terms, the agreement specified broad classes of application which were to be decided upon as and when the time to choose came along, with system flexibility being seen as the guiding principle by the Police staff. Hence, during 1995 and 1996, as applications came to be considered, the Police team demanded best of breed systems at that point in time, and not what was best of breed when the contract was signed in February 1994. This was regarded as beneficial and as problematic in equal measure by the Police team: on the one hand they would have liked to have a detailed specification of what they were going to get, but on the other hand they were able to negotiate for improvements based upon the supplier's use of the term best of breed.

At the same time however, the IT budget represented a relatively fixed percentage of the overall Force budget and left little scope for any increase. This led to a pressing need on the part of the Police Officers working on the project to obtain a best value solution within the originally specified contract price, and this added a further dimension to the discussions with the supplier through the life of the project. This pressure was accentuated after April 1995 when the Chief Constable became responsible for a set budget which meant that there was no possibility of gaining extra funding for the IT budget. Those negotiating with the supplier were primarily the Deputy Chief Constable and the Inspector together with the Computer Manager. The disputes continued in the meetings between the Police Officers and with the representatives from the supplier

throughout 1994, 1995, and 1996. The disagreements about the applications resulted in changes being made to some of the specified applications, such as criminal intelligence - where a Windows version became available just before implementation was due, and the STORM application which had to be redeveloped to run on Windows NT after the police staff decided to standardise the Force control room on NT. The reason for this decision was not clear, although it was argued that a judgement was made that NT "was the right way to go" to future-proof the system. This decision was taken by the Police staff, and communicated to the IT Department through an informal meeting between the Inspector and the Computer Manager. Similarly, when the Personnel system came to be discussed, the Police Officers demanded, and eventually got a system that had only just been developed for another Force, rather than the one originally discussed.

The term JKL had been developed by the Inspector and the Computer manager, and approved by the Deputy Chief Constable. The acronym was perceived by those outside of this team to symbolise a major project, and was taken to illustrate that the Force was engaged in a large scale investment in IT. While the people who devised the term had just wanted to come up with "something snappy", the acronym was perceived to have become firmly established in the language of those in the Force quite quickly - JKL was seen as "the Deputy's IT project" . The JKL project amounted to a considerable investment in IT for the Force. Initially, the cost of installing the network amounted to approximately £800,000, while by mid-1995 the force had spent £1.5million on applications. The main application for funding was presented to the Police Board with a report on progress to date, in November 1993. Initially it was felt that this deadline would be missed due to the volume of work, and that they should wait for the next meting of the Police Board. However, the Chief Inspector and the Inspector producing the documentation for the funding bid were concerned that the Deputy Chief Constable may leave before the next meeting as it was known that he was applying for a vacancy that had arisen. They therefore ensured that the documentation was presented in time for the meeting in November, although in the event the Deputy Chief Constable did not leave the Force at this time.

The JKL project formed the basis for IS development in the Force over the next four years. While most of those most closely involved were of the view that JKL was the ISS, views amongst other senior Officers varied. Several people observed that there was

not a written ISS as such, rather that there was a shopping list of applications, progress towards which had in their view been determined and driven by the deputy Chief Constable. However, as one of the Officers involved in developing the operational requirement commented when considering ISS,

> "it's all in our heads, we don't have time to sit down and write a strategy".

Another member of that group observed that,

> "the strategy is really a hybrid. I think like everything else we had an idea that we would like to write down exactly where we were going ... we don't have as such a strategy document that we can hand out, we are working to the philosophy of strategy rather than to the word of it..... So .. the documentation, there isn't a lot of it, we tend to be working by 'hmmm that sounds a good idea let's try it and see', .. so I don't know how close that runs to what we should be doing but, that's how we did it and it seemed to work".

The JKL project was supported from the Police side by a team of three Police officers, together with support when required from the IT department. The Police Officers were chosen by the Chief Inspector in charge of communications in liaison with the Deputy Chief Constable. Although the civilian computer manager was notionally in charge of the Force's IT, the JKL project was led by throughout by Police Officers. These Officers were chosen based upon perceptions of the operational expertise as Police Officers combined with perceptions that they had some interest in IT. In 1994 the IT department comprised six staff members, although by this was acknowledged by the senior management to be some way below what was required given the volume of work and by comparison with similar organisations. Over the next three years this slowly increased to eleven members of civilian staff, but nonetheless, the staff in the IT department were never closely involved in the development of the JKL project. Instead, they were expected to maintain the existing IT infrastructure, and to assist the installation and maintenance of the new applications as and when they arrived.

By mid-1995, three hundred personal computers had been distributed around the Force wide area network, all running Microsoft Windows 3.1, and initially providing only word processing as a means of encouraging use of the system by staff. After a few months, the first JKL application was delivered, this being crime reporting. By the end of 1995, four further applications had been implemented, these being: criminal intelligence, custody, personnel, and command and control. The command and control

system is of interest in that despite the operational requirement stating the desire to avoid bespoke software, the command and control system (known by the acronym STORM) was written by the supplier for Case B Police Force. This followed discussion at monthly formal meetings throughout 1994 between representatives of the supplier, the Chief Inspector communications, the Deputy Chief Constable and the Officers appointed as part of the JKL project team. It was decided that existing systems did not meet the requirements of the Force, particularly in allowing for the sharing of data across applications, and the use of a GUI interface. Furthermore, it was said to have been argued by the supplier that the financial cost to the Force would be greater if they had to source the system from outside rather than develop it in-house. This was said to have been agreed by the Deputy Chief Constable, and the development of STORM continued. Of the other applications mentioned above, only the criminal intelligence system was obtained from outside, this being sourced from the same company that had provided a complete system to Case A Police Force.

During 1996 and 1997, all of the remaining applications from the original operational requirement were delivered, although the project ran into a series of difficulties which meant that delays occurred in the implementation. The reasons for these delays included technical difficulties in trying to implement applications, for example, in switching from UNIX to Windows NT for STORM, and then integrating this into the rest of the JKL System. Applications were also subject to delay following periods of heated negotiation between the internal staff and the suppliers regarding the nature of applications in line with disputes about the contract discussed above. By June 1997, the following applications had been delivered: crime reporting & management system; criminal intelligence system; command & control system (STORM); custody management system; crime pattern analysis; personnel system; traffic accident recording; duty rostering; stores administrative system. During 1998, a majority of the originally intended applications had been delivered, and the JKL project was generally regarded as having been completed. The only applications that had not been implemented were applications for productions, for property, and geographic information systems, although this was being used in a limited number of locations. One of the applications that had not been developed was a management information system, and the lack of this application was of concern to senior management who perceived an ever greater need for up to date information to aid management of the Force. Priority had been given by

the project team to systems that had an impact upon operational policing, and the management information system was not seen in this light by them. However, there was no one at a senior level now driving the development of these systems, and the contact with the supplier had become less frequent after the departure of the previous Deputy Chief Constable in 1996. In fact this system was now regarded as something separate from JKL, and it was scheduled to be introduced before 2001, although a specification for it had yet to be produced.

In January 1994, a structure was put in place to oversee the management of the JKL project using a cut down form of the PRINCE project management method. Just before the project supplier was chosen, a project board, a project assurance team, and a project team was set up. The project board constituted the deputy Chief Constable, the Chief Superintendent who was head of Police operations and the Chief Superintendent who was head of CID. The project assurance team comprised a Superintendent and two middle ranking officers who were chosen by the Deputy Chief Constable. The project team consisted of three Police Sergeants, although they worked closely with the Inspector and the Computer Manager in the IT Department. The project team provided reports on an approximately weekly basis to the project board, although what this meant was that the reports were sent to the Deputy Chief Constable, and to the project assurance team. Whilst some informal consultation occurred between these parties as the project took shape and was implemented, very few formal meetings took place during the course of the project. The Project Board met every six months during 1994 and 1995, while the project assurance team also met every six months during 1994 1995, and 1996. While the fact that such meetings took place was recorded, neither set of meetings was minuted, and nor was any documentation produced to support the project management. The Project Board reviewed what had happened, and was led by the Deputy Chief Constable, the meeting stopping after he left the Force, just before he left the Force in 1996. One member of the group commented, echoing the views of others,

> "we were supposed to be looking at following PRINCE, but it is very much in name only, we're certainly not doing all the documentation. .... We don't have any methodology really, we just have to get on with it".

The desire to use PRINCE, albeit it in a customised form, reflected a concern that the Force did not have a strong track record in project delivery prior to the JKL project.

However, despite this project structure, there was concern that during the project, and particularly in the earlier stages, very little was known about the IS developments, let alone about ISS, outside of the small group immediately involved in the project. Communication amongst those Police Officers and IT staff associated with the project tended to be quite ad hoc, in so far as meetings were often unscheduled, and communication between various people tended to bypass what would be regarded as the normal procedures. This meant was that the project team had direct access to the deputy Chief Constable who took a strong interest in the project, whereas in other situations such communication would be expected to be channeled through a 'chain of command'.

The communication with the supplier was conducted more formally, and was undertaken by either the Deputy Chief Constable, when available, and the Inspector and Computer Manager from the IT department. On several occasions, the Chief Inspector also attended these meetings. The meetings were not minuted, although a review of agreed decisions and actions was provided by the supplier as appropriate following each meeting.

The nature of the process surrounding the project led some senior officers to voice the concern that the entire policy and development associated with IS had been too isolated from other senior people in the Force. Specifically, the hands-on approach of the deputy Chief Constable caused some concern to a number of people within the Force. During the first couple of years of the project, 1994 and 1995, there was a concern that not only did very few people either know what was happening or have opportunity to comment upon it, but that should the deputy Chief Constable leave the Force on promotion for example, that there would then be a void left in the IS area in particular. Another view was that given that the Force was perceived as being so far behind other Police Forces in their use of IT that without such a senior person to drive the project from the outset it would never have happened. In May 1996 the deputy Chief Constable did leave the Force on secondment for two years, although he continued to keep in touch with the progress of the project informally by speaking with the Computer Manager and the Chief Inspector.

By 1996, not only the network but also several of the larger applications had been implemented, and the view of all those involved was that it was too late for anyone to

turn the clock back, even if they had wanted to. This referred to a perception that the Chief Constable was not interested in IT, and that were a new Deputy Chief Constable to be appointed who was unenthusiastic about IT, that this could see a reverse in priorities for the JKL project. As it transpired, an internal appointment was made to the position of Deputy Chief Constable, and while this person was an overt enthusiast for IT, he was nonetheless content to allow the IT department to continue developing JKL. At the end of the two year secondment of the former Deputy Chief Constable in 1998, that officer did not return to the Force, moving to a new role elsewhere in the Police Service. In May 1998, a new Chief Constable was appointed to the Force, which meant that there was now a new group of people at executive management level compared to when JKL had commenced. The perception amongst staff involved with IS was that the new executive was not particularly interested in IS, although this was by no means seen as a problem. It was felt that such a management team would give the IS area a chance to consolidate upon the developments in the JKL project after a number of years of continual change. Indeed, it was commented upon that one of the consequences of ongoing changes at senior officer levels, caused by transfer, promotions, and retirals, was that periods of intense change and periods of consolidation tended to follow cyclically.

7.3.2. THE DEVELOPMENT OF AN IT STRATEGY DOCUMENT

Throughout the period of the project, all those spoken with considered that there had been a shift in thinking during the early 1990s in relation to the issue of strategy, or at least an awareness amongst many senior officers that strategy was something that should be considered. As discussed in Chapter Five, the setting of objectives had come to play an important role in policing during the 1980s, and this had continued in the 1990s. In terms of the concept of strategy within Police Forces in general, it was commented that:

> "... we always had objectives, but our objectives were things you put on the wall, and after three months they didn't have a great deal of .. sort of rationale behind why you did them in the first place. But nowadays people do plan long term, we are looking at where we are going to get to in a few years time, they're looking at all the threats and doing various SWOT analyses and all the techniques are brought into play to look at what is in the future."

This view was reiterated by other senior staff, and indicated an awareness at senior levels to consider strategy as a something that affected thinking processes as opposed to

being an outcome to be produced. During the mid to late 1990s, the corporate strategy group for the Force consisted of the three ACPOS rank officers, that being the Chief Constable, deputy and assistant, together with the divisional commanders, who generally hold the rank of chief superintendent. These officers met to determine what the plan should be for the year, which included identifiable policing priorities, which were then published (see for example Appendix 3). Departments were then expected to identify how their activities for the coming year would support the attainment of those priorities, and to develop their own plans around that. While some wondered about the amount of consultation that actually occurred at the policy level, there was an identifiable structure in place through which strategy was considered. Each year, an annual plan was published for the Force, and was subject to comment not only internally, but also by bodies such as the Police authority and the HMIC, and was also put into the public domain in the form of the Chief Constable's annual report (e.g. Case B Police Force 1994-1997). The common view of those spoken with was that the concept of strategy only came to be considered by Police Forces in the early 1990s following the publication of a series of Home Office circulars (e.g. Home Office, 1983, 1993) and Audit Commission papers (e.g. Audit Commission, 1990, 1993), together with the increased attention being given to issues of strategy during inspection visits by the HMIC. In particular, there was increasing referral during visits by the HMIC to strategy for IS as representing best practice, and this concept came to appear with regularity in HMIC reports (HMIC, 1992, 1996, 1997, 1997a, 1998, 1999). The combination of these factors was said to have brought to the attention of many senior staff the concept termed strategy, not least in the area of IS given the growing recognition of the importance of IS, and the cost .

It was not however until 1997 that the first ISS was published, which sought to set out the current situation of IS in the Force, some consideration of the short, medium and long term future, together with intentions for IS. However, despite not having a documented ISS, those involved in the JKL developments from 1993 onwards were confident that there was an ISS - it was just that it was not written down. By contrast, the common perception of those Officers not involved in the JKL project was that there was no strategy, that the development was perhaps rather ad-hoc, and that it was dominated by the Deputy Chief Constable.

After all of the developments in the JKL project, it was in October 1997 that an IT strategy document was produced in the Force, and this was done as a result of adverse criticism by the HMIC in an inspection eight months earlier. The IT strategy document for the Force was a five-year strategy, and was written solely by the Chief Inspector who was then overseeing the IT department. The rationale behind this document was to put in writing the aims of the IT department, so that a link could be seen between IT and the Force policing plan (as shown in Appendix 3).

The IT strategy document was drawn up following some limited consultation within the IT department with the Computer Manager, and sets out plans to continue the work set in motion during the years 1994 to 1997, that is, during the completion of the JKL project. The focus of the IT strategy document is upon IT as opposed to IS, and comprises 13 pages which review existing use of IT, environmental factors, and proposed future developments. An executive summary of this document is reproduced in Appendix 4. The document goes sets out an assessment of current local and national implications for IT operations, together with an outline of issues related to future IT operations and an outline of intended work with associated costs. The main issues arising form the IT Strategy Document are:

- A desire to link all IT development to demonstrable benefits that support the Force's strategic aims;
- The need to monitor the Scottish Police IS Strategy which may mean an end to locally developed applications;
- A possible need to decide and then separate out those IT developments and services which are so important to the Force that they must be retained in-house, and not subjected to compulsory competitive tendering or market testing;
- A need for future systems to be discussed in terms of the business process(es) or business problems which they will assist/address;
- The need for a user-led approach, and the identification of project champions;
- A desire to maximise existing assets in the IS/IT area through which to support the achievement of the Force's strategic priorities.

On the whole, the IT strategy document does not say what they aim to do in the future, focussing more upon what they have done to date. Where the future is discussed, this is done in terms of very broad desires in relation to the Force's aims, and in terms of

upgrades to the IT base. Although the initial statement in the document does identify that this is a strategy for information systems and information technology, information systems *per se* are not discussed.

In April 1998, the development of the IT strategy document was highlighted as an example of good practice during a visit by the HMIC (HMIC, 1998). Despite this endorsement, the HMIC expressed concern that the Force should move beyond documented statements of intent, in relation to improving project management for example, and that these should be translated into practice. In addition, and interestingly given the stated awareness of PRINCE in the earlier stages of the JKL project, the HMIC was critical of the Force's failure to follow PRINCE in IT projects, and as the HMIC commented,

> "There was a perception of systems being rushed into use without a full appreciation of the consequences" (HMIC, 1998).

As we have seen, in developing the JKL project, what was referred to by the staff involved as a shopping list of applications was procured and implemented, and it was after more than half of the applications had been implemented that the concept of strategy was directly addressed in relation to a consideration of a business case for IS developments.

While a documented IT strategy did not emerge until 1997, this had not prevented several other IS issues being addressed in addition to the JKL project. In 1995 e-mail was implemented across the area using a software package called CC-MAIL. This was implemented by the IT department after informal discussion between the Deputy Chief Constable and the computer manager towards the end of 1994. Following personal interest by the computer manager and one other member of the civilian IT staff, during 1997 a world wide web site was established, and in 1998 an intranet was implemented. Both developments arose out of the IT department, and while the web site provided general information about the Force, the intranet made a variety of previously paper based data available - such as procedure guidelines, telephone directory - and also provided access to more dynamic data such as recent crime figures. Neither development was part of a written strategy, but were ideas developed either following informal discussion in the case of e-mail, or through development as a result of personal interest in the case of the Web page and the intranet.

During a period of four years the Force had moved from a position of having a very limited exposure to computer based IS to having a comprehensive, integrated IS. It is worth therefore moving on to consider the concept of strategy in relation to these developments, as this discussion will enable us to explore a variety of issues associated with the predominantly technology based description in this section.

7.4. DISCUSSION

In seeking to understand ISS formation at Case B Police Force a number of key issues have become apparent to us from our analysis. Whilst we have seen explicit discussion of ISS, it is also apparent that in addressing ISS there are a range of other issues which are embedded in a broad stream of organisational practice (Mintzberg, 1978; Johnson, 1997). We must therefore also turn our attention to these associated issues if we are to grasp the intricate socio-political nature of ISS formation (Waema & Walsham, 1990). In order to draw out themes which we have found to be important for our understanding, we will concentrate our analysis of the case in terms of our investigative framework discussed in Chapters Two and Three, in particular we will structure the sections based upon web analysis (Kling, 1987).

7.4.1. INFRASTRUCTURAL AND HISTORIC ISSUES

The infrastructure at Case B Police Force was generally regarded as poor, and as having been starved of development following the installation of the CAPS system in 1983. Staff in the Force had access to the national systems, such as PNC, SCRO, and HOLMES, but otherwise were dependent upon either stand-alone PC based systems, for example for personnel, or paper based systems, for example in dealing with people in custody, and for recording lost or stolen property. As with the previous study, we can utilise our typology set out in Figure 6.3.. Prior to 1993, the systems in place reflected categories 2 and 3. With the implementation of the JKL related applications, by 1997 the systems in place reflected all four of the categories. Indeed, it was the development of systems such as those that we have categorised as Systems to Support Analysis and Investigation (category 4, Figure 6.3.) that were seen by those closely involved in the

project as being the systems which would be most welcomed "by the troops on the streets" - that is, it was the development of these applications that was often used to justify the JKL project to those outside of the development group.

While the nature of the systems prior to 1993 was a cause of concern to several senior Officers, the reasons for this lack of development were seen to lie with the executive level Officers, who were perceived not to be interested in developing IS in the Force through investing in IT. Such perceived disinterest is regarded as problematic for ISS (Levine & Rossmoore, 1995).

In addition to this, there was some resentment amongst operational Officers that the CAPS system for example had been imposed upon them without consultation, and had altered they way they operated. For example, operational Police Officers have a considerable amount of discretion in the way they work (Banton, 1964; Holdaway, 1979) and the arrival of the CAPS system was perceived to negatively affect the way they had traditionally operated by requiring them to constantly update their status and position. This was this referred to numerous times as being as a case of the IT tail wagging the operational dog. This perception of the CAPS system was symbolic of a general sense of scepticism amongst those spoken with, who were not directly involved in the development of JKL, regarding the role of IT in contributing to the policing of the area. This was acknowledged by those developing ISS in the form of the JKL project, in that they perceived a need to deliver, "applications that the troops on the ground would want to use" as a priority, although at the same time there was a perceived sense of urgency to "recover lost ground" in the use of IT.

This latter desire to recover lost ground had led one senior Officer to drive the development of handheld computers in 1991. This effort had been seen as a disaster by most people spoken with, and as a waste of money. The reasons for this were regarded as stemming from the disinterest in IT by the executive level management at the time, which allowed the Officer to develop the opportunity - illustrating the exercise of power through the manipulation of resources (Hardy, 1996), in this case through a position of authority, which results from

> "the existence of a balance of power in the hands of an individual who initiates actions and gets results" (Zaleznik, 1970, p.51).

After three years this trial was stopped by the Deputy Chief Constable after he decided that it did not have any part to play in the JKL system, although the fact that that system was barely being used was also an influential factor. Nonetheless, the ability of one senior Officer to influence the use of IT was also perceived to have occurred because of a lack of ISS, because there was no plan for IS in place - or even in consideration at that time. Weatheritt (1986) concludes that this sort of muddling through approach to developing IT, in addition to many other areas of policing, is endemic in Police organisations. The reasons for this include the way in which Officers are required to gain experience in many areas before promotion, becoming proficient in none, coupled with the need for them to make an impact, ideally without too much risk to their career (Ackroyd et al, 1992), before moving on to the next posting (Reiner, 1994). It was such examples of the historic use of IT and the nature of the infrastructure that were brought to the attention of the new Deputy Chief Constable by the Chief Inspector communications when he arrived. It was this situation that formed the basis for the decision to do something about it in redeveloping IS across the Force.

7.4.2. SOCIAL RELATIONS

In considering the impact of social relations upon the practice of ISS formation, as with the preceding case study perceive a shifting power configuration relative to ISS formation from *Autocracy* to *Instrument* (Mintzberg, 1983). This is set out in Table 7.1. below.

Characteristics:	**Perceived as shifting:** ***Autocracy* to *Instrument*:**	**Evidence:**
External Coalition (EC)	Dominating (having been passive)	A group of influencers operating through governmental remit, if not explicitly in concert; Increase in activity of HMIC, audit commission, SPISS; funding linked to initiatives (e.g. best value from ISS); external coalition seems to have become dominating after being passive in relation to ISS.
Internal Coalition (IC)	Bureaucratic (but mock bureaucracy [Gouldner, 1954] evident; also having been personalised through dominant internal influencer)	Discipline based hierarchy; authority of Deputy Chief Constable (DCC) important for ISS. Project Board set up to satisfy perceived bureaucratic expectation of external influencers, but not seen to be influential for ISS.
Apparent Power Relationship	EC ==> IC (IC increasingly controlled)	IC dominated ISS (subject to funding approval), but eventually departure of DCC & impact of SPISS, HMIC was followed by ISS reflecting EC.
Implications	Replacement of one dominant influencer by another	ISS initially controlled from IC led by DCC. DCC left, & IT staff said that ISS would reflect SPISS, acknowledging perceived impact of HIMC, SPISS, CCJIS, on ISS.

Table 7.1. Power Configuration Analysis (based upon Mintzberg, 1983)

As with the preceding case study, one of the findings of the analysis in Table 7.1. is the apparent shift over time which we noted in the power configuration (Mintzberg's, 1983). The internal coalition, viewed as being led by the Deputy Chief Constable (DCC) was initially dominant as ISS formation revolved around JKL. The external coalition could be described as passive. Following the departure of the DCC, and after the majority of JKL applications were installed, ISS formation was perceived to have slowed. In addition, ISS formation was seen as increasingly focussing on SPISS, with perceptions of the role of the HMIC in commenting upon ISS, and of the increased support for SPISS by the Scottish Office being said to lead to a recognition that ISS formation on an

independent basis for the Force would stop. While the external coalition could be seen to be becoming more dominant, the internal coalition was driven by the DCC, and achieved the installation of JKL. Once the DCC left, the internal coalition could be said to have become less dominant vis-a-vis the external coalition. The implication of the analysis is that once ISS formation becomes dominated by the external coalition, it becomes extremely difficult for internal coalitions to a shift to another power configuration (ibid.) - even if they wanted to.

We now move on to discuss themes that have arisen from the case with regard to social relations, and which have developed as a result of our analysis of ISS formation

7.4.2.1.The Importance of Roles

We have already noted the role of senior Officers in positions of authority (see section 7.4.1 above) which can be considered in relation to the exercise of power through the manipulation of resources (see Table 3.1.). This same exercise of power is evident more specifically in relation to ISS formation from 1993 onwards, and which can be examined in relation to particular roles. We can see in the role of the Deputy Chief Constable the apparent exercise of power through the manipulation of resources in terms of a position of authority. This enabled him to request a review of existing systems, and to authorise the initiation of the JKL project. The Deputy Chief Constable was recognised amongst all who were spoken with as a leading figure in developing and driving the JKL project. However, we would argue that the position of authority alone does not explain this perceived ability to influence aspects of ISS formation; if this were the case then previous incumbents might also have been expected to be influential. Of course, we can contend that previous figures in such senior positions were influential, but in a negative sense, in this case in not stimulating ISS formation. The role of senior people in preventing or hindering ISS can be considerable, particularly where they are seen to be disinterested or where they abdicate responsibility for ISS formation (Levine & Rossmoore, 1995). More than just authority, we see in this case study evidence of a perceived high level of knowledgability about IT, in addition to a perception as someone who is very interested in IT. For example, someone of "immense enthusiasm, who provided a great push for IT at a very senior level in the Force", and as someone "who's

very much 'let's go for it'... too much so at times .. we can't keep up!". This perception of interest in and knowledgability of IT reflected facets of the individual's own mental construct (Jayaratna, 1994), as well as those of the perceiver, but were coupled with a position of authority in the organisational hierarchy which enabled action to be taken.

That said, there were other people in influential roles in relation to ISS formation in this case study. The Inspector in the IT Department and the Computer Manager were both interested in IT, and in particularly in the case of the latter had considerable expertise in the area. In their respective positions they were able to work on a day to day basis on the JKL project, although they lacked the authority within the organisational setting that the Deputy Chief Constable had. However, these individuals were able as a consequence of their knowledgability to influence ISS, for example in developing the operational requirement which led to the JKL project, in working as part with the project team, and in negotiating with the supplier. That said, this was an intrinsic part of their respective roles at that point in time; they could be said to have had these roles because of their respective interest and knowledgability as much as they exhibited these characteristics in the roles. However, in terms of Police Officers, a role does not necessarily have anything to do with interest and knowledgability, as was demonstrated when in 1995 a new Chief Inspector was appointed with responsibility for the IT department. The individual appointed was regarded as someone who had no knowledge of IT and no interest in it. The Officer was posted into the position by the Deputy Chef Constable to gain career experience.

In our view based upon the evidence in the case study, the role that the Deputy Chief Constable was perceived to have had in ISS formation, as someone with knowledge and interest in IT in a senior position of authority, required the people in complementary roles, in this case the Inspector and the Computer Manager, who had both interest and expertise. In this case, a project champion was instrumental in ISS formation, as Walsham (1993) found, but not just in terms of authority, also in terms of knowledge and interest.

7.4.2.2. Structures and Processes in relation to Decision Making

The decision making processes throughout the development of the JKL project, in particular from 1993 to when the Deputy Chief Constable left in 1996, revealed a number of issues of note.

First amongst these was the apparent exercise of power which we see in relation to the manipulation of processes (see Table 3.1.) in terms of the assembling and operation of the various groups under the PRINCE method. All of the appointments were made by the Deputy Chief Constable, and the operation of the groups was effectively determined by him. The project team which was closely involved in the development of the JKL project met regularly, and communicated with him regularly. In contrast the other two groups, which were set up to monitor the progress and nature of the project rarely met, despite the fact that the Deputy Chief Constable chaired the Project Board. This mean that that project was largely free from scrutiny by anyone in the Force.

Another aspect concerns the apparent contrast in decision making and reporting structures. The Police Officers operate within a clear organisational rank hierarchy (see section 6.1.) which together with organisational structure determines reporting channels, as we have shown for the IT department in Figure 7.1.. The essence of the Police service as constituting a uniformed, disciplined group of people is embodied in notions of bureaucracy (Mintzberg, 1979) and formalism in decision making (Loveday, 1993). We see on paper a formal reporting channel for the IT department, and indeed in practice this is evident for some aspects of the work, such as for transfer or leave requests. However, in relation to ISS formation, in particular in relation to the JKL project, as we have seen, the discussions between the Inspector, the Computer Manager, and the Deputy Chief Constable bypassed this formal structure completely. The discussions between these people were held informally, usually on an ad-hoc basis. This could be seen as reflecting what Gouldner (1954) observed, and which he termed mock bureaucracy; namely, the informality of the reporting structures and decision making processes that for the most part lay behind the facade of formal bureaucratic structures.

7.4.2.3. Perception and Meaning

When we consider the exercise of power through the manipulation of perception (see Table 3.1.), our attention is drawn to the use of language. Those closely involved with the JKL project could be seen to share an IT related language that excluded other, in particular other senior Officers who were not conversant with that language. This use of IT related language as a means of excluding others had been noted elsewhere (Bloomfield & Coombs, 1992; Jones, 1995), although the degree to which this is a consequence of role rather than a deliberate ploy is less easy to gauge. This use of IT related language can also be seen as constituting a part of the shared relevance structures (Berger & Luckmann, 1967) through which the participants engage in the construction and reconstruction of social reality. That the individuals engaged in the JKL project participated in the creation and sustaining of a shared view of that endeavour is founded upon the concept of shared relevance structures which enable them to engage in constructing their version of reality.

The use of language can also be considered in terms of the title of the project - the JKL project. The development of what was perceived to be a bold new IT initiative was in part based upon the acronym, and in particular upon the swift emergence of this term into the language of staff in the Force outside of the project group. The use of this term was said to have had the effect of creating a certain sense of expectation, if not to say awe of the systems to come. The acceptance and usage of the term by non-IT related staff also implied that the money being spent by the Force was being spent on something significant. Thus, the development for use of this term can be said to be symbolic, and to represent the manipulation of perception.

Symbolically we see in this case study, as with case study A, the perception on the part of numerous staff that an investment in IT has been a disaster. While the role of the individual in this has been discussed, the symbolic aspect of this mean that staff in the organisation setting were wary of money being spent on IT that was not being done in accordance with a carefully thought through strategy. Again, the use of the JKL acronym could be seen to be of value in allaying peoples fears through affecting their perceptions of the proposed system.

With this in mind, we find the lack of a written ISS interesting. While those involved claimed that they had a strategy, and that

"it's all in our heads; we haven't got time to sit down a write a strategy",

it was not until the HMIC commented adversely upon the lack of a documented ISS that something was produced. The production of the documented IT strategy can also be considered in terms of the exercise of power through the manipulation of perception. We can see that this document represented a symbol that the management within the IT Department took notice of what the HMIC said, and this was at least as much for internal audiences as it was for the HMIC, not least because of the demands on budget that IT made. In addition, the production of the document was seen to symbolise the professionalism of the IT department in the eyes of those who produced it - hence, the desire to manipulate perception. A number of senior Officer spoken with were worried that the IT Department had been driven along by the Deputy Chief Constable, and that without him they were "lost"; the production of the strategy document was intended to reassure them that the Department knew what it was doing. It is notable that the symbolic aspects of such IS or IT strategy documents is noted by some authors (e.g. Knights & Murray, 1994), whilst being wholly ignored by others (e.g. Ward & Griffiths, 1996).

7.4.2.4. Relations with other Agents

The relations with agents such as the Home Office, the Scottish Office, and the Audit Commission, were seen as being important factors in ISS formation according to those interviewed. Similarly the work of the HMIC was also perceived as a factor which influenced the development of ISS. The role of these bodies can be considered in terms of the exercise of power through the manipulation of perception (see Table 3.1). We can see the visits from the HMIC as a ritual, through which norms of best practice are encouraged, as demonstrated for example in the declarations of written ISS, and the use of project management methods as being best practice (HMIC, 1999). In our view, the establishment of such cultural norms should not be seen as a one off event (Pettigrew, 1985a), but rather a part of an ongoing process of construction and reconstruction of social practice in organisational settings (Berger & Luckman, 1967; Giddens, 1984; Reed, 1992). In addition, we can also understand the actions of these groups through the exercise of power in terms of the manipulation of perception, through the use of

language, in this case the use of the language of strategy in relation to ISS (Audit Commission, 1993; Home Office, 1993, 1994; HMIC, 1993, 1998, 1999).

Other agents who affected ISS formation were the supplier for the JKL project. The nature of the contractual agreement between the supplier and the Force influenced the nature of the systems delivered. Here, the perceived flexibility in the use of the term best of breed in the contract meant that the eventual system was seen as a reflection of the process of development and negotiation that took place, and could be viewed as a constituent part of the respective constructing and reconstructing of social reality that cans be said to have taken place through the interaction of both parties. This highlights to us the important place that such ongoing interactions between the Force and agents, such as in this instance the supplier, have in influencing outcomes.

7.5. SUMMARY

In this case study, ISS formation was perceived to be closely related to the JKL system, which was successfully developed and installed. While ISS formation was regarded to have slowed considerably after the departure of the DCC, we have highlighted the increased domination by the external coalition, and we have categorised ISS formation in relation to a shifting power configuration from *Autocracy* to *Instrument* (Mintzberg, 1983). That said, we have also discussed four themes which we have identified as being important in our understanding of the generative forces affecting ISS formation, and in particular the analysis has discussed the exercise of power in relation to all four conceptualisations outlined in Table 3.1.. We now move on to discuss case study C.

CHAPTER EIGHT - ISS FORMATION: CASE STUDY C

8.1. CASE C POLICE FORCE

The fieldwork for this case study was initially focused upon the practice surrounding the strategic decision to develop a new Force-wide IS leading up to the expiry of the lease for the existing mainframe based system in April 1995. The practice surrounding ISS formation included the decision to purchase a system, although delays meant extending the lease on the existing system until 1997. In the event, five key applications were implemented by 1998, although a further five smaller applications were not due to be completed until 2001. In this case study we conducted fieldwork during the period 1994 to 1998.

We faced a problem in this case study of which the reader should be aware: it was that we were not allowed to keep copies of documentation generated within the Force. Thus, while we saw ISS documentation, we were not allowed to keep copies of it. For this reason, we have focussed our discussion here upon social practice surrounding ISS formation, and not upon the content of the ISS documentation although mentioning the existence of such documentation in passing. The reasons for not allowing us to keep copies of such documentation seemed to us to result from a combination of two areas: uncertainty, because no one from outside of the Police had ever asked to see, let alone to keep such documentation before; a cultural tendency towards secrecy, which has been noted by others who have sought to research the Police (Shapland & Hobbs, 1989; Hills, 1995). However, it is notable that this was the only one of the case studies in which we encountered such problems, which lends credence to the view that senior Police Officers are gradually becoming more accommodating of research into the Police (Reiner, 1989).

As with all of the case studies, we have investigated historic events associated with IS in the Force as it became apparent that these were important to our understanding of ISS formation. The development of ISS and subsequent implementation of a system to replace the existing mainframe system provided the focus for our period of engagement, this being a prerequisite for validity in case study research (Pettigrew, 1985a; Yin,

1989). In the course of our research 17 different members of staff were interviewed, many on several occasions between 1994 and 1998. This was in addition to informal discussions with these and other people during the period of fieldwork.

8.2. BACKGROUND TO CASE STUDY

Case C Police Force covers an area of 2,500 square miles, which includes a city, and has a resident population of over 800,000 people. To police this area the Force has an authorised establishment of 3,700 personnel, of which 2,600 are Police officers. The budget allocation had increased gradually during the 1990s, having been just under £110 million in 1992/93, and with the Chief Constable receiving a budget of £128 million for 1997/98. Most of the resources are concentrated upon the city, where the largest number of the 71,407 recorded crimes occurred during 1997/98, with detection rate of 35% for the Force as a whole (HMIC, 1998c).

The structure of the Force changed during the 1990s, both in terms of people in senior positions, and in terms of organisational structure. Of particular significance in terms of IS, a new deputy Chief Constable was appointed in 1994, with responsibility for IS, and a new Chief Constable was appointed in 1996, someone perceived to have a strong interest in IS. In 1994, the organisational structure was changed to devolve management responsibility, and to improve communication across the Force. This restructuring of the Force resulted in a new structure centred upon six territorial divisions, and also led to the redesignation of several hundred staff as departments and responsibilities changed. At the same time, people in the IT department were thinking about ISS in preparation for replacing their existing systems.

8.3. INFORMATION SYSTEM STRATEGY FORMATION

The first substantive experience with computerisation within the Force was in the mid-1970s with the link to the PNC. In 1981 the Force implemented a computer based IS for the recording of crimes committed in the area, a system which remained in use for the next 15 years. One problem that became apparent with this system over the years was that it was extremely difficult to extract data from the system, something which became

increasingly important during the 1990s as Police managers were required to report upon a range of performance indicators, the importance of which had increased across the Police Service as a whole (HMIC, 1992). This was one factor which led to an increasing sense of frustration with the existing systems amongst Police managers.

A number of individual IS application were developed across the Force over the next few years, although there was no strategy for IS within the Force. Many Divisions were said to have obtained personal computers, again on a stand alone basis, for basic office functions such as word processing and spreadsheets. By 1993 there were approximately (although no one knew the exact figure) 200 personal computers in the Force, all being used independently, except for those on a local area network in the headquarters building.

In the early 1990s, the IS department in the organisation was staffed by 17 civilian personnel, including the IS Manager, who reported through a three tier hierarchy of Police Officers to the Executive level within the Force. This reporting structure is shown in Figure 8.1. below:

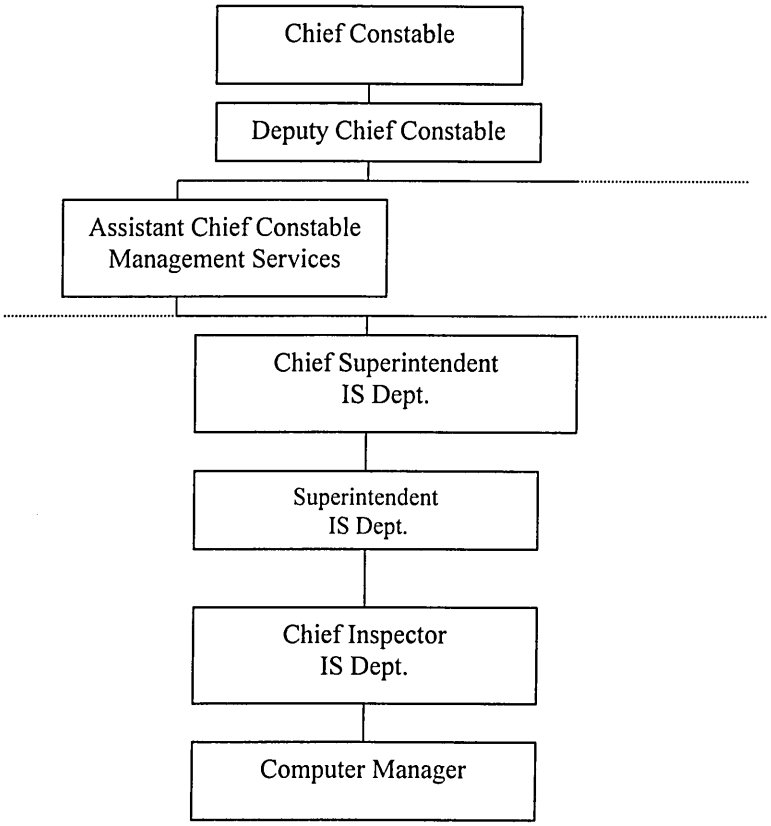

Figure 8.1. IS/IT Reporting Structure 1990-1994

As we can see, the IS Manager was overseen by three senior Police Officers within the IS Department, and this formed the communication channel to the Force executive.

The common view of those spoken with was that the concept of strategy only came to be considered by Police Forces in the early 1990s following the publication of a series of Home Office circulars (e.g. Home Office, 1983, 1993) and Audit Commission papers (e.g. Audit Commission, 1990, 1993), together with the increased attention being given to issues of strategy during inspection visits by the HMIC. In particular, there was increasing referral during visits by the HMIC to strategy for IS as representing best practice, and this concept came to appear with regularity in HMIC reports (HMIC, 1992, 1996, 1997, 1997a, 1998, 1999). The combination of these factors was said to have "concentrated the mind" of many senior staff on this concept termed strategy, not least in the area of IS given the growing recognition of the importance of IS, and the cost .

In 1993, the IS Manager suggested that they should consider developing an ISS for the next few years, something which they had not documented previously. As one of the Officers in the Department noted,

> "we never had a strategy that has been documented and stated in the past, it evolved through a series of separate developments and it is only now that we are trying to pull them together"

It was said to have been agreed within the IS department that ISS should be developed in view of the ending of the lease in April 1995 for the mainframe which supported the command and control and the crime recording systems. The contract for the mainframe system was held with Honeywell Bull, who indicated that they would not support the systems after the current lease expired. In addition to this, the systems mentioned were written in the COBOL programming language, which the Force could not support internally, and were not millenium complaint. Viewed in combination, these factors were said to have highlighted to the senior staff in the IS department that they had begin to prepare for a new system, and to do this it was decided that they needed to develop an ISS.

Indeed, the need to do something with IS was not in dispute so far as a number of senior managers were concerned. By 1994, while the systems in place were said to have a lot of functionality, the IS situation was a cause of concern amongst many senior staff given

that there was only one year to go before the mainframe lease expired. The following comments from a senior officer reflect the views expressed by many others,

> "you only have to look at the hotchpotch of different computer systems that we've got, that we've built up over the years to realise that this is how to build up an information gathering system when you hadn't really thought about what you want to achieve in the first place. I mean, it's a dogs breakfast, and I mean I remember how we got to be the way we are and it was all to do with money being available, money being available quickly .. 'we've got to spend that money, let's get something on board here' ... pressures from persuasive personalities within the organisation can result in them having some sort of stand alone computer system which doesn't merge in with the strategy that we're operating on, and yes we've got a dogs breakfast when it comes to information systems".

These views reflected several issues that many senior staff articulated. Firstly, was a concern that ISS was not being thought about in a professional manner, because of the presence of so many Police Officers in senior positions in the IT department. There was a strong feeling that civilian experts should be running IT. Secondly, there was a concern that without proper planning, the Force would not be able to budget appropriately, which was seen as being a potential problem once the Force moved to having responsibility for a fixed budget after 1995. Thirdly, the historic approach to IS development was symbolic, in that it appeared to most people to have been ad-hoc, funded by windfalls of money from the Scottish Office primarily, which was spent quickly and without reference to any strategy. Hence the overall perception that "IT is in a mess", and that "we've really got get our act together in using computers".

By and large, a concern with the IS systems was shared by those officers with more direct involvement in IS, and in particular there was a desire to instigate a more coordinated approach to development than had been undertaken in the past with a view to providing a corporate approach to data management.

The departure of the IS Manager in 1993 coincided with the promotion of one of the Assistant Chief Constable to the post of Deputy Chief Constables in the Force. The new Deputy Chief Constable had overall responsibility for IT, and was aware of the high level of discontent with the existing systems in the Force. Furthermore, despite not having much exposure to IT personally, he was sure that IT could be of use in the Force, but was less convinced that the existing IS department was best placed to deliver it. The reasons behind this view were the historic failure to develop IT effectively, his view that

civilian expertise should be employed wherever possible, and a concern that it was not appropriate for Police Officers to remain for too long in the same post, particularly in something regarded as a non-operational posting, such as IT. In the IS department the shortest period of time that a senior Officer had been in-post was six years. He instigated a recruitment search exercise to recruit somebody who had experience in developing and implementing large, integrated systems. This resulted, in March 1994, in a new IS Manager being appointed from the private sector, with a specific remit to develop and implement an ISS for the Force.

Up until 1993, IS was developed under the auspices of the IS department, and as one senior member of staff in the department commented,

> " .. we've had a strategy, it's just not been written down, it's not been called a strategy".

Whether or not there was a strategy, development of IS across the force was regarded as uncoordinated and ad-hoc, resulting in a range of systems that were variously described as piecemeal, a mish-mash, and a dogs breakfast. In 1990, the then IS Manager put forward the idea of developing a set of data requirements and a data model for the Force, an idea that was accepted by the Police hierarchy in the IS department. It was decided by the Police Officers in the IS Department and the IS Manager to employ Oracle, as they were recognised as a leading company in managing data. One of the senior Police officers involved emphasised the process of consultation that had taken place,

> "we employed the Oracle corporation to come in and along with our own operational staff, the Police officer staff within IT, we went round every department virtually in the force speaking across ranks, saying 'what do you see as the main issues, what would you like to see in the way of a systems strategy', forget the IS strategy that can come later,.. and throughout that process which has gone on over several years there has been consultation, consultation, consultation".

While senior managers outside of the IS department acknowledged that there had been consultation exercises, they were not happy that nothing seemed to have resulted from those exercises.

In April 1993, following the decision to address ISS, it was suggested by the IS Manager that they should have a project structure of some kind. This followed a comment by the

HMIC during a visit in 1992 regarding the absence of project management in the IS developments to date in the Force. The HMIC also stated that it was desirable, and good practice, for those within the Police Service to adopt the PRINCE project management method for all IS developments. The Police Officers in the IS department agreed that a project management method should be adopted, and after a few weeks they decided to set up a structure based upon the PRINCE project management method. Initially, in July 1993, a User Assurance Committee was formed, in-line as the Police IS staff saw things with a loose version of the PRINCE project management method. It was viewed as a loose version of PRINCE because while they wanted to have some structure to the project, the PRINCE method was perceived as requiring too many resources and too much documentation. The user assurance committee was seen as a useful means of having input on the IS project work from staff outside the IS department.

One year later, a Project Board was also formed. Up until this point, the executive level managers had not been persuaded that such a Board was necessary, and certainly not that they should sit on it. Following the appointment of the new IS Manager and the Deputy Chief Constable, it was decided by these two people that such a Board would be a useful means to maintain communication between the IS developments and the executive level management. This reflected a concern that the existing IS departmental structure was not the best way to ensure clear communication both up and down the hierarchy. From the perspective of the IS Department staff, the reason for requesting that a Project Board be set up was that within the IS department there was a feeling that the ISS efforts were too much a bottom-up effort, with little success in generating interest from the top levels of management. Some of the problems at this time were commented upon by one senior member of IS staff who observed that,

> "there were stages when we produced reports [for the executive] and they just disappeared".

Initially the board comprised the Deputy Chief Constable, two senior officers from the IS Department together with a Police divisional commander of Chief Superintendent rank. The project board met a few times during 1994, in April, June and in September, to consider interim reports on IS that were delivered by the IS Manager.

Following the arrival of the IS Manager in March 1994, the Deputy Chief Constable employed the services of the IS/IT consulting firm KPMG to monitor the development

of ISS. This was described by those inside the IS Department as a helpful step, as it gave credence to the view that what they were doing was good. However, this had not been the motivating factor behind the appointment of KPMG, who were appointed with a view to making sure the IS Department got things right. Again, this was based upon the perception that historically the evidence showed that they had not developed IT properly. The work on the ISS was undertaken largely by the IS Manager working with KPMG. Once this was completed, the interim findings were presented to the project board in June 1994. In reviewing the ISS the IS Manager suggested that they expand the numbers on the user assurance committee to enable a detailed analysis of system requirements for the applications identified in the ISS and subsequent prioritisation. During the period July and August 1994, a specification of requirements was drawn up following three one-day workshops around the Force, conducted with staff nominated by their Divisional Commanders. These workshops were conducted by the IS Manager together with the Superintendent and Chief Inspector from the IS department. From this they identified twelve application areas, and a revised ISS was prepared for submission to the Project Board. While nothing had happened with the data requirements and data model developed by Oracle up until this point, this document was used to help identify likely required application areas. The ISS document, which was six pages in length, set out the following main issues:

- Current situation - including: the problems with the existing system; the expiry of the lease
- Other Factors - including: changes in technology, for example in considering whether to adopt UNIX or NT; client server computing -v- mainframe systems; demand levels for applications, and usage levels (in command & control and crime recording) based upon trends in usage of existing systems.
- Desired Option - including: the likely need to negotiate an extension to the mainframe lease; the desired option for client server, UNIX based system, utilising off-the-shelf or tailored software rather than bespoke development; data to be entered once only, and for interrogation of data across Force-wide system
- Proposed Application areas - Command & Control, crime recording, crime reporting, custody, criminal intelligence, personnel, firearms, licensing, property, GIS, crime analysis, accident recording.

This proposal was accepted by the project board, and was then forwarded to a meeting of the Force executive in September for final approval, which was granted. The Project Board membership was also amended, on the instigation of the Deputy Chief Constable, and now comprised the Deputy Chief Constable, the IS Manager, three senior officers from the IS department, a senior officer from operational command duties, a partner and a consultant from KPMG. It was hoped by the IS Manager that an IS steering committee could be set up with responsibility for looking at IS at large, with the Project Board left to concentrate upon particular developments, although this did not actually happen until after the appointment of a new Chief Constable in 1996.

The role of the project board was to approve, or reject, submissions to it in respect of the ISS. In 1994, it was generally agreed that for an ISS to be accepted, there must be a strong emphasis upon assisting operational officers. One senior officer on the project board summed up what he was seeking,

> "you build up your IT strategy by saying 'what is the bloody strategy of the Police Force, what actually are we here for', We're here, I think, to lock up bad people, look after good people, and keep order on the street. We do that by getting the maximum resources employed at the sharp end by keeping paperwork and bureaucracy to a minimum, by using civilians at every possible post we have and by denying Police officers every excuse you can find to come in out the rain and that sort of thing. You then develop your IT strategy around that philosophy".

Following the acceptance of the ISS document, the Project Board met again in September and approved the desired option, authorising the senior members of the IS department to develop a request for expressions of interest in providing such a system. They were also authorised to negotiate an extension to the mainframe lease, which they did, buying a two year extension to April 1997.

In September 1994, as part of the ongoing organisational changes within the Force, a new strategy and development department had been created, and it was to this area that responsibility was given for ISS. The reporting structure for ISS was now as shown in Figure 8.2. below:

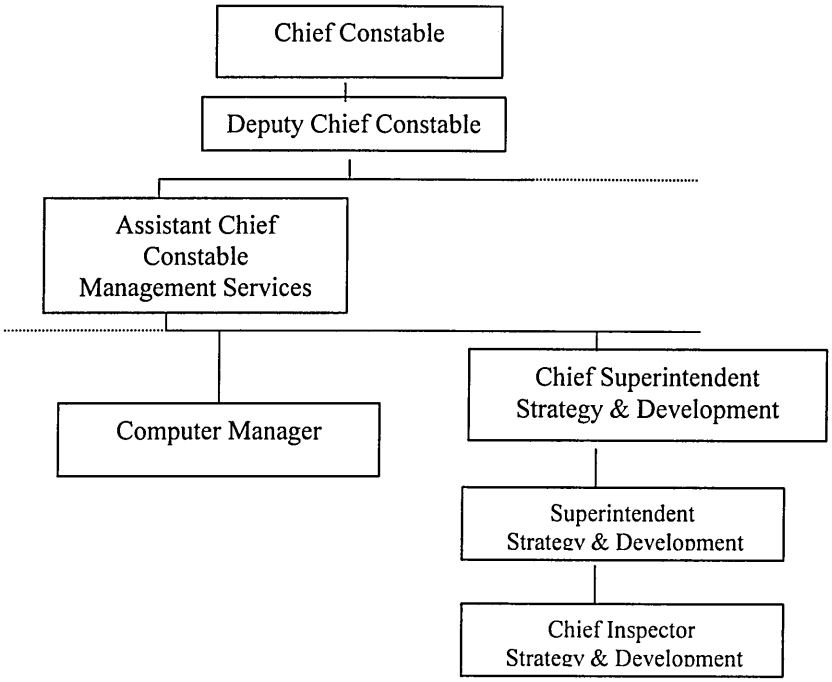

Figure 8.2. ISS Reporting Structure 1994-1997

In practice, although the IS Manager now reported directly to the executive level of management in the form of the Assistant Chief Constable Management Services, in practice ISS was controlled by the Strategy & Development Department where the Police Officers from the IS department had been moved to. The aim of this move, instigated by the Deputy Chief Constable was to remove Police Officers from working in the IS area. However, the outcome was that in practice, although the IS Manager had a major role in leading the ISS work, ISS was managed by Police Officers from the Strategy & Development department. This proved to be a frustrating period for those working on ISS, as whilst the IS Manager was able to report directly to the Assistant Chief Constable regarding IS Department matters, for ISS the reporting structure reverted to a three tier hierarchy between the IS Manager and the executive level.

At this point, members of the Project Board envisaged the ISS as a five year plan, although as was noted,

> "I would think that every year you would want to stop and reassess your .. not change direction but perhaps the course, because perhaps what someone asks for now is not technically feasible but in two years time it may well be, so you've got to have the flexibility in the strategy to deal with that".

The perception by members of the Project Board was that the new system would be in place before 1998. However, the IS Manager tried to scale down their expectations in terms of time. He stated that while he hoped that most of the main applications would be installed between October 1996 and April 1997, he did not think that either the hardware or the software would be the problem should delays occur; instead he felt that the training commitment was so large for so many applications across the entire Force, that it would be this area that slowed implementation.

In November 1994 a request for expressions of interest was sent out, and during the tendering process, KPMG continued to act as consultants to the Project Board, although meetings of this Board became very infrequent after September 1994. The next meeting of the Board was May 1995, with meetings held at six-monthly intervals after that. Views of KPMG's role varied; some Police officers felt that the role of KPMG was useful in confirming that the IS department had been doing the right thing in developing ISS over the preceding 18 months. On the other hand, others felt that the consultants were useful in providing reassurance about the work of the IS department, particularly prior to the appointment of the new IS Manager. This latter point arose from a number of senior Police officers who expressed concern about the abilities of the department to deliver what was required, based on previous experiences. However, by 1995, most people were reassured that the ISS had been thoroughly thought through, and that it reflected trends in industry. Following submissions from 12 companies, a shortlist of three possible suppliers was drawn up by the IS Manager, in collaboration KPMG, and from the Police Officers in the Strategy and Development Department. A series of meetings were conducted between members of the Project Board and the shortlisted companies during May and June 1995. Following this, a firm were appointed as the lead supplier with contract negotiations continuing until September 1995 when a contract was signed for the delivery of ten applications and a new data network. The ten applications were: Command & Control, crime recording, crime reporting, criminal intelligence, custody, GIS, personnel, firearms, GIS, accident recording. The budget for hardware and software was £3.3 million, with a further £500,000 being allocated for the network.

1996 and 1997 were spent working with the suppliers in developing the new applications and preparing or implementation. Responsibility for liaising with the lead

supplier rested with the IS Manager, and on occasion senior Officers from the Strategy and development Department. However, the attention give to other areas of IS were minimal, and the IS Manager found it increasingly difficult to gain acceptance for the view that IS development needed to be monitored on an ongoing basis. In the view of senior managers, once a contract had been signed with the supplier, it was a question of sitting back and waiting for the system to arrive. During this time, periodic updates were submitted to the Project Board by the IS Manager, although the meetings were seen as uneventful and unproductive.

In May 1996 a new Chief Constable was appointed to the Force. This individual was perceived as someone with a strong interest in IS, as this individual had chaired the ACPOS computer policy committee for several years. In the February following the appointment of the new Chief Constable, a number of senior members of staff commented that, "there is a much higher visibility for IT now, and a stronger commitment to IT in the Force". In December 1996, an IT steering committee was set up, chaired by the Chief Constable and with the other three members of the executive amongst the members. The remit of this group was to maintain an overview of IS developments in the Force, while leaving Project Boards to concentrate upon particular projects. Thus, a series of project boards were set up for individual IT projects, each board being chaired by a member of the Force executive. In addition, the IS Manager was given responsibility for ISS, with a reporting route via the IS Steering Committee. The Senior Officers who had previously been in the Strategy and Development Department were redeployed to operational postings. This reflected a log held view by many senior Officers that there was no need for Police Officers to be actively involved in managing the development of ISS, although up until this point nothing had been done to stop it. The removal of Police Officers from the reporting structure between the IS Manager and the executive level was regarded by all those involved as being beneficial to the process of decision making. Prior to this, there had been a considerable amount of frustration that decision making processes about IS were handicapped by a long reporting structure through a tier of Police Officers. Furthermore, several staff commented that the fact that it was Police Officers feeding back to the executive on IS matters served to complicate the issues because of the lack of expert knowledge by both parties.

Other IS projects began to be recognised as important following the instigation of the IS Steering Committee. In particular, there was acknowledgement to actively participate in an ongoing project to integrate Police IS applications with other elements of the criminal justice system, such as the Procurator Fiscal, and the prison service, as part of the ISCJIS (Integrated Scottish Criminal Justice Information System) project. Another project commenced in 1997 was a collaborative venture with the Scottish Office and the tourist board to develop multimedia kiosks using old Police boxes in the city. The first of these went live in July 1998.

Although the IS Manager was now solely responsible for IS matters, including ISS, a Police presence in the department was maintained, with a Police Inspector seconded for three years. Indeed, during May 1997, responsibility at executive level for the IS department had been moved from the Deputy Chief Constable to the civilian director of corporate affairs. This was the culmination of a policy to completely remove Police Officers from management of the non-core areas of policing, or as some saw it, from interfering in an area in which they had limited knowledge.

Between the May 1996 and July 1998, five software applications had been implemented in the Force as part of the ISS, these being crime recording, crime reporting, criminal intelligence, personnel, and command & control. In addition to a new wide area network, approximately 700 personal computers had been installed across the Force. A corporate database was running using Oracle, while the criminal intelligence package made use of the Textract system from Memex, as used in case studies A and B. The Command and Control application had been due to be implemented by February 1997, although eventually was implemented in March 1998. The delays to this application were due to development problems at the lead supplier, but this meant that the IS Manager had to arrange another extension to the mainframe support contract, this time until April 1998. This delay had severe knock on consequences within the Force, because the training that was scheduled for all staff in the use of the application coincided with planning for a major operational event in 1997, meant that all aspects of the project were running between six and ten months behind schedule by mid-1998. It was not anticipated that the outstanding applications would be implemented before the end of 2001.

8.4. DISCUSSION

In seeking to understand ISS formation at Case C Police Force we have identified several issues which have emerged from our analysis of the case study. In addressing ISS there are a range of other issues which are embedded in a broad stream of organisational practice (Mintzberg, 1978; Johnson, 1997) which we must examine if we are to grasp the intricate socio-political nature of ISS formation (Waema & Walsham, 1990). In order to draw out themes which we have found to be important for our understanding, we will concentrate our analysis of the case in terms of our investigative framework discussed in Chapters Two and Three, using web model analysis (Kling, 1987) to structure the section.

8.4.1. INFRASTRUCTURAL AND HISTORIC ISSUES

The technological infrastructure in 1993 was seen as a significant factor in spurring the development of ISS, in that the lease for the mainframe based system was due to expire in 1995 after some 15 years of usage. It was said by most people there that the feeling amongst the civilian IS staff and the Police staff in the IS department at the time was that they had to start thinking about what systems were going to replace the mainframe. Outside of the IS department, there was also an awareness that the mainframe lease was due to expire, but also there was a high level of discontent regarding the systems in the Force. The people with influence over ISS in 1993 comprised a small group of people within the IS Department: the IS Manager, and the senior police Officers (as illustrated in Figure 8.2.). The Officers at the executive level were not perceived as displaying much interest in IS, and the lack of a champion for IS at executive level was something that those involved with IS bemoaned until the arrival of the new Chief Constable in 1996.

ISS formation in this case study, between 1994 and 1998, took place against a backdrop of a series of continual changes within the Force, both at a strategic level and at an operational level. At a strategic level, during 1994 and 1995 there were a series of changes in the structuring of the Force, which resulted in changing the number and coverage of Divisions, as well as job changes for several hundred people. Again, in 1997 and 1998, following a review by the newly appointed Chief Constable, more

restructuring took place, again changing Divisions and jobs. In the first series of changes, what no-one outside the IS department took account of was that these changes had implications for the information systems in use, for example where some areas became the responsibility of new Police stations, or where the personnel systems had to be updated to show several hundred role changes, as well as the changes to Divisional structures. These changes resulted in the IS staff being inundated with work, and the changes being delayed once the implications became apparent in 1995. This was just the sort of issue that the IS Manager felt would be addressed by an IS Steering Committee, which was set up in 1996. When the second series of changes took place, the IS implications had been recognised.

These strategic changes had direct implications for ISS when the Police staff in the IS department were relocated to a Strategy and development Department, taking responsibility for ISS with them, despite the fact that it was the IS Manager who was doing most of the work in developing the ISS.

At an operational level, there were continual staffing changes, particularly amongst Police staff, as they moved around on promotion. This was particularly the case at the most senior levels, where between 1994 and 1998 all of the senior Managers shown in Figures 6.5 and 6.6 either changed role or left the Force. In addition, the IS Department faced some difficulty in retaining and recruiting staff, given that they were doing so in a city where good IS staff were in great demand from industry.

8.4.2. SOCIAL RELATIONS

In considering the impact of social relations upon the practice of ISS formation, as with the preceding case study identify a shift in power configuration relative to ISS formation from *Closed System* to *Meritocracy* (Mintzberg, 1983), as set out in Table 8.1. below.

Characteristics	Perceived as Shifting: *Closed System* to *Meritocracy*	Evidence:
External Coalition (EC)	Passive (in relation to ISS formation, but elements of increasing domination)	The role of influencers operating through governmental remit, was recognised, but they were not perceived to be dominating ISS; the role of SPISS was taken account of in relation to aligning IT standards; future funding was perceived to be linked to initiatives (e.g. best value from ISS); external coalition seems to be passive, but elements of increasing domination in relation to ISS.
Internal Coalition (IC)	Bureaucratic, shifting to becoming Professional,	Discipline based hierarchy; authority of Deputy Chief Constable (DCC) important for ISS. Project Board set up to satisfy perceived bureaucratic expectation of external influencers, and operated for ISS. Professional experts given increasing control of ISS as Police staff are moved out.
Apparent Power Relationship	IC controlling, but some influence from EC	IC dominated ISS (subject to funding approval), but eventually departure of DCC & impact of SPISS, HMIC was followed by ISS reflecting EC.
Implications	Rise of external dependency, potentially, but influencers are increasingly professional experts: hence, skills & knowledge for complex IS work.	Forces affecting ISS formation have been perceived to come from within, but with influence from some external influencers. EC perceived to be largely passive for ISS formation, but internal coalition seeing professionals as influencers

Table 8.1. Power Configuration Analysis (based upon Mintzberg, 1983)

In contrast with the preceding case studies, one of the findings of the analysis in Table 8.1. is the more limited nature of any apparent shift over time which was noted in the power configuration (Mintzberg, 1983). The internal coalition, led by the Deputy Chief Constable (DCC) remained dominant as ISS formation developed. The external coalition could be described as passive during the period of research. The role of SPISS as part of an external coalition was acknowledged by those involved in ISS formation practice, but otherwise elements of an external coalition were not accorded as dominant a position as in the previous case studies. The implication of the analysis if we follow

Mintzberg's (1983) argument is that there has been an increasing dependency upon the professionalism of IS staff within the internal coalition as the configuration shifts to Meritocracy. We also note however, that increased political pressures upon the Police (Taylor & Williams, 1992; Reiner,1994; Savage & Leishman, 1996) may suggest that Instrument would be an option were it not for the role of professional experts.

We now move on to discuss themes that have arisen from the case with regard to social relations, and which have developed as a result of our analysis of ISS formation

8.4.2.1. The Importance of Roles

Several aspects of Roles are important in our understanding of ISS formation in this case study. When the idea of ISS was first muted by the then IS Manager in 1993, the roles of influence for IS were clear: they were, the Chief Superintendent and Superintendent in the IS Department, and the IS Manager, in that order. While the senior Police Officers had authority within their own Department, in the Force as a whole, IS was not regarded with any importance. There was no one in an executive position with any interest, or knowledgability about IS who expressed any wish to develop the area. As a consequence, the IS staff saw their own positions of being ones that were constantly acting in bottom-up policy fashion, whereby they were developing and sending ideas upwards, whereas they would have preferred to receive some top-down impetus for IS.

This situation changed to an extent with the appointment of a new Deputy Chief Constable, who had responsibility for the IS area. This person brought a combination in the role of interest and authority, although the interest was focussed upon seeing the IS department improve upon what was regarded as a poor record in developing IS. The Deputy Chief Constable recognised his own lack of knowledgability in the IS area, and there was some concern among senior staff that the same could be said of the Officers in the IS Department; hence, KPMG were recruited as a way of bringing expertise in. This combination then played a central role in the ISS processes. The appointment of KPMG can be seen in terms of an exercise of power through the manipulation of resources, in that the authority of the Deputy Chief Constable enabled him to appoint KPMG to a key position to develop ISS.

In addition, we can also consider this same appointment in terms of an exercise of power through the manipulation of perception, which rests "in the ability to persuade others to enact realities that further the interests one wishes to pursue" (Morgan, 1986, p.176). The deputy Chief Constable was concerned that the development of ISS should be seen to be done with expert help, and the role of KPMG could be seen partially as a symbolic act to the Force as a whole. In addition though, the appointment of KPMG was also seen to symbolise disquiet regarding the abilities of the IS department (prior to the appointment of the new IS manager) to develop ISS.

The recruitment of a new IS Manager was seen as a positive step by all concerned, and at the time this role combined both expertise and interest in the area. However, initially the role lacked authority in itself to develop ISS in the way that the IS Manager hoped, and in addition, the lack of a champion meant that the IS Manager role was not supported by someone in a role with authority and interest in IS *per se*. This changed gradually, when for example the IS Manager was given more authority following the removal of Police staff from the IS department to the Strategy and development Department. At the same time, this was undermined by the retaining of control of ISS by the Strategy and development Department. The expert knowledge that the IS Manager was recognised as having was not of itself sufficient to enable the exercise of power in relation to Police Officers, particularly those also concerned with ISS. It was not until after the new Chief Constable who arrived in 1996 instigated further changes in structure that the IS Manager was given authority over ISS. At the same time, this authority this was buttressed by the position of a champion for IT in the form of the Chief Constable, who combined both interest, authority and knowledgability. It should be noted that a civilian member of staff, no matter how senior, is not viewed as having authority over a Police Officer of any rank, although the apparent support of a senior Police figure is perceived as lending a certain weight to their position.

8.4.2.2. Relations with other Agents

Throughout the course of ISS formation, relations with several agents were found to be important. The combined presence of what were seen as governmental groups, such as the Home Office, the Scottish Office, and the Audit Commission, was instrumental in

shaping the views of senior Officers regarding the concept of strategy. Continual reference was made to these bodies in discussions about strategy, and ISS in particular. The role of the HMIC in conducting and reporting upon inspections was another key factor. The role of these bodies can be considered in terms of the exercise of power through the manipulation of perception (see Table 3.1). We can argue that the visits from the HMIC were seen as a ritual, through which norms of best practice are encouraged, as demonstrated for example in the declarations of written ISS, and the use of project management methods as being best practice (HMIC, 1999). The establishment of such cultural norms should not be seen as a one off event (Pettigrew, 1985a), but rather a part of an ongoing process of construction and reconstruction of social practice in organisational settings (Berger & Luckman, 1967; Giddens, 1984; Reed, 1992). This applies also, if less frequently, to the Home Office, Scottish Office, and Audit Commission. The release of Papers and Circulars can also be seen as a part of the ritual of the shaping of practice, the exercise of power throughout the manipulation of perception.

In addition, we can also understand the actions of these groups through the exercise of power in terms of the manipulation of perception, through the use of language, in this case the use of the language of strategy in relation to ISS (e.g.: Audit Commission, 1993; Home Office, 1993, 1994; HMIC, 1993, 1998, 1999). Many of those people spoken with referred to the change in the use of language that had occurred following the release of papers and circulars from the above agents.

We can also think of these agents in terms of the exercise of power through the power of the system, in that there is a sense of acceptance that these agents are part and parcel of the system, the web of relations within which the reality of organisational practice is constructed and reconstructed. The operation of these agents is out of the control of any of the people in the organisational setting, but should not be thought of as being in the hands of others either. Instead, it is the position and operation of these institutions of practice relative to one another through which a web of power relations can be considered operational.

The role of KPMG, brought in as consultants by the Deputy Chief Constable can be seen as a symbol that the IS staff needed to be monitored, and that the level of expertise

for ISS based upon past performance was potentially inadequate. This is in effect a further exercise of power, understood in terms of the manipulation of perception. Thus we see the use of consultants by managers to both bring in expert knowledge, whilst also acting as a symbolic message to those in place.

8.4.2.3. Structures and Processes in relation to Decision Making

In this case study the decision making processes between those developing ISS and those responsible for authorising this development, and the allocation of resources surrounding ISS were conducted through formal means, for example as evidenced by the Project Board. While the project team, which included the IS Manager and the Superintendent from the Strategy and Development Department were able to develop ISS, there was no evidence of informal decision making processes between them and the executive level, which contrasted with the position in the Cases A and B.

It could be argued that this a reflection of the size of the Force in terms of manpower. We are not persuaded by that, as all of the key actors are located within two floors of the Headquarters building. Instead, we find that this formality can be seen as a reflection of the exercise of power through the management of process. The use of formal processes of decision making in relation to ISS enabled the Deputy Chief Constable to maintain control of the agenda for ISS, and to manage the levels of access and participation to ISS formation. There was a determination amongst those spoken with that those who had previously developed IS were not allowed to control the development of ISS away from the view of the executive and other senior Officers. The presence of KPMG on the Project Board also added to the sense of managed formality.

This represents a divorce between those with expert knowledge, although as we have said for some of those involved in developing ISS this was disputed, who were actively engaged in the practice of ISS formation, and those making decisions that would ultimately shape ISS formation. That said, given the periods of strategic change which we have identified, informal decision making processes would have been subject to disruption as staff were moved to other Departments and other Divisions. The formality within the process ensured a certain degree of continuity through these times of change, something which has been noted as desirable in relation to strategy practice during

periods of organisational change (Chaffee, 1985; Pettigrew et al, 1992; McLoughlin & Clark, 1994).

8.5. SUMMARY

In this case study, ISS formation was perceived to be related to the acquiral of a system, with several applications having been installed and with further applications still to be installed at the time of writing. While ISS formation was regarded to have halted, we have highlighted the domination by an internal coalition, and relative passivity of an external coalition leading us to categorise ISS formation in terms of a *Meritocracy* power configuration (Mintzberg, 1983). That said, we have also discussed four themes which we have identified as being important in our understanding of the generative forces affecting ISS formation, and in particular the analysis has discussed the exercise of power in relation to all four conceptualisations outlined in Table 3.1.. We now move on to discuss case study D.

CHAPTER NINE - ISS FORMATION: CASE STUDY D

9.1. CASE D POLICE FORCE

The fieldwork for this case study was initially focused upon the practice surrounding the strategic decision to implement the PQR system (N.B.: not the actual acronym for the system; changed for anonymity purposes), which formed the heart of ISS within the Force between 1993 and 1998. In this case study we conducted fieldwork during the period 1995 to 1998, with an intensive period of study being conducted during July, August and September 1996. In all, we interviewed 117 people in the Force, some on several occasions over the period of research. A large number of the people interviewed were seen during the intensive period of fieldwork in 1996. This was in addition to informal discussions with these and other people during the period of fieldwork.

We have investigated historic events associated with IS in the Force as it became apparent that these were important to our understanding of ISS formation. The development of ISS and subsequent implementation of the PQR system provided the focus for our period of engagement, this being a prerequisite for validity in case study research (Pettigrew, 1985a; Yin, 1989).

9.2. BACKGROUND TO CASE STUDY

Case D Police Force is responsible for a population of just under 280,000 which inhabits an area covering over 12,000 square miles. To Police the area, an authorised establishment of 648 Police officers and 260 civilian staff are provided, and a budget of £35 million (Case D Police Force, 1997). Like others, this Force faced budgetary challenges since Chief Constables were given sole responsibility for the budget from April 1996. For example, this resulted in the Chief Constable having to find £990,000 of savings across the Force following the 1996/97 budget allocation (Case D Police Force, 1997). Force expenditure on IT normally amounted to around 1% of gross expenditure, with the IS department receiving a revenue budget of £210,000 in 1997/98, having

asked for £280,000 to meet its plans. This compares with £279,000 in 1994/5, £249,000 in 1995/96, and £238,000 in 1996/97.

In terms of structure the reporting structure of IT within the Force is shown in Figure 9.1. below:

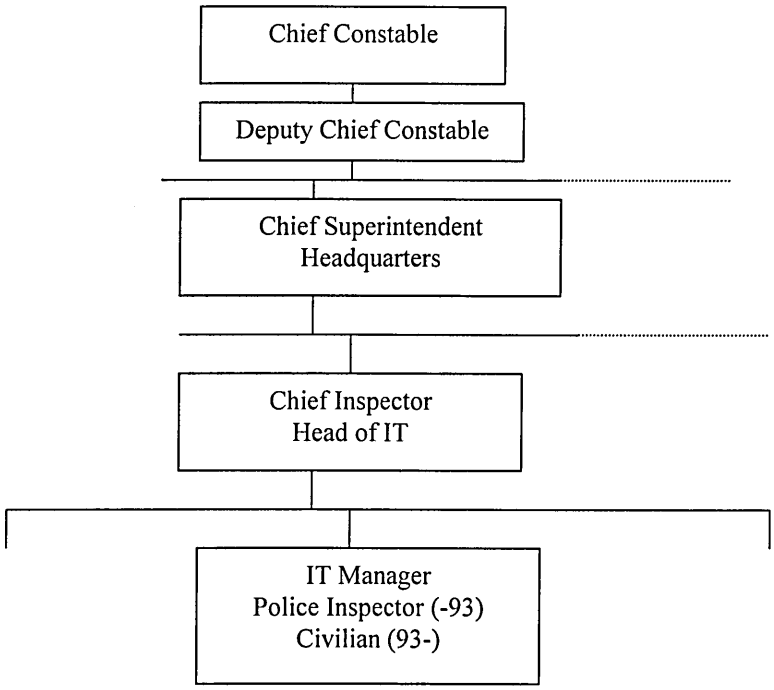

Figure 9.1. IT Reporting Structure 1990-1998

9.3. INFORMATION SYSTEMS STRATEGY FORMATION

Case D Police Force's earliest exposure to computer based IS was through a link to the Police national computer (PNC) which was established in the mid-1970s, and then a link to the Scottish criminal records office (SCRO) in the mid-1980s. During 1986 and 1987 a collaborative development was said to have taken place with the computer company ICL and Lancashire Constabulary, following a personal contact that a senior officer had with ICL. Having spent £60,000, in 1988 the Force ended up with a mainframe based system which did not operate effectively, said to be because the system was slow, and the process for recording crime bore little relation to the existing processes. This experience was generally regarded as an expensive disaster for the Force. In 1990, the first PC's were bought for the Force by one of the two Police officers

in the Research and Development Unit who dealt with IT, and distributed to headquarters department and to divisional stations.

The common view of those spoken with was that the concept of strategy only came to be considered by Police Forces in the early 1990s following the publication of a series of Home Office circulars (e.g. Home Office, 1983, 1993) and Audit Commission papers (e.g. Audit Commission, 1990, 1993) , together with the increased attention being given to issues of strategy during inspection visits by the HMIC. In particular, there was increasing referral during visits by the HMIC to strategy for IS as representing best practice, and this concept came to appear with regularity in HMIC reports (HMIC, 1992, 1996, 1997, 1997a, 1998, 1999). The combination of these factors was said to have brought the concept of strategy to the attention of many senior staff, not least in the area of IS given the growing recognition of the importance of IS, and the cost .

Within Case D Police Force the idea of strategic planning had been in evidence in the form of five year development plans, the first of which was produced in 1975. In 1988, having had a major IT development in the Force which proved to be what was later described as a disaster, it was recognised by senior officers that,

> "with the increasing scope, complexity and financial implications associated with information technology, it has been realised that a project by project reactive style of approach is no longer suitable" (Case D Police Force, 1990, chp.8).

As a result of this, a Research and Development unit was set up in June 1988 with responsibility for IT. The staff comprised one Inspector and two Sergeants whose duties were to oversee all IT development. In August 1988 the Inspector overseeing IT requested a Computer Development Survey by a firm called Knowledge Technology (a representative of whom was known to one of the senior Officers) who were asked to make recommendations regarding future use of IT. This firm recommended that:

- A local area network be established in the main urban area, with a wide area network throughout the Force
- A standardisation on personal computers
- An increase in staffing of at least 6 further people

To address these recommendations, a computer strategy group was formed, chaired by the Chief Constable, with a range of senior officers and heads of department represented, and one of their first actions was to authorise the development of a network for the Force, with the work to be undertaken by the Research and Development unit. The group was to meet once every four to six months, which they did up until 1992, when they stopped meeting. Why they stopped meeting never became clear, it just seems that they did. The strategy group set out to provide:

- A statement of direction from top management
- Identification of the major requirements for resources and investment
- A framework for setting priorities, concentrating resources in key areas and allocating responsibilities
- Ground rules and standards to create the environment for taking decisions on individual projects (Case D Police Force, 1990).

The establishment of the network proved to be so onerous a task that the Inspector in charge of the unit insisted that a review of staffing be undertaken. In 1990 the computer strategy group granted a request for the National Computing Centre (NCC) to be allowed to audit and make recommendations regarding the staffing of IT in the Force.

The NCC made several recommendations (NCC, 1990), which were:

- That the Research and Development and Communications section be merged to form the Information Technology Department
- That the Information Technology Department consists of civilian staff and management reporting to a senior Officer in the Force
- That the Force carry out an IT strategy review
- That the establishment of 21 posts be approved. This establishment would replace the current 14 posts currently in the Communications, Research and Development Units, and the WARC Implementation team
- That a suitable standby agreement is approved for those civilian posts required to provide out of hours support.

Following the NCC report, an ISS planning process (as shown in Figure 9.2. below) was adopted from the NCC by the computer strategy group, and was stated as being a

process that was intended to serve the Force until 1995 (Case D Police Force, 1990, Sec.8).

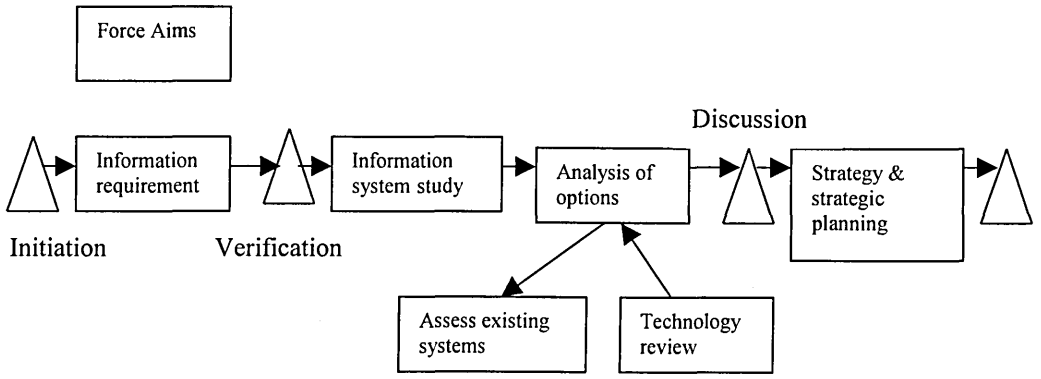

Figure 9.2. IS Strategic Planning Process (Case D Police Force, 1990, sec.8)

In fact, so far as those involved with the group, as well as those observing its actions, this strategic planning process was no more than a paper based illustration, and by no means represented what actually happened. Most people commenting upon the operation of the strategy group at this time were of the opinion that it was not so much ineffectual, as just "didn't happen ... ever" according to members of that group. Most people were of the view that it was thanks to this group that the Force ended up with what he referred to as a hotchpotch and ad-hoc development of systems.

In addition to setting out the Strategic Planning Process, the development plan for the Force specified the ISS for the next five years, this being (in brief):

- To replace ICL equipment with personal computers
- To introduce new applications including: message switching; crime reporting; liquor licensing; custody recording
- To install PNC2
- To train staff as necessary
- To keep abreast of new technology (Case D Police Force, 1990)

This group continued to meet about once every six months from 1988 until 1992. At this time the IT area was being managed, and principally run by Police officers, and the drive to consider strategy came principally from the officer leading the section.

However, despite the setting out of the strategic planning process the strategy group was seen by other staff as too operationally oriented, acting more as a checkpoint team ticking projects off rather than as a group thinking about strategy. By 1992 a range of IT was in place, and a relationship had been established with a company (who we shall term XYZ Ltd. from hereon) as a supplier of systems software. It was with this company that the CCRS (Computerised Crime Reporting System - later known as PQR) system was developed and implemented, the system that formed the basis of IT developments in the Force throughout the 1990s. Given this, it is interesting to note that despite the documented IS Strategic Planning Process as laid out in Fig.9.2., the IT developments in the Force were according to several people led not by the computer strategy group but by the Police officer leading the IT department. Indeed, as noted in a previous section, for a number of senior officers it seemed that the supplier, XYZ Ltd., was providing much of the impetus for IS direction in the Force up until the mid-1990s.

In November 1990 and April 1991, following the report by the NCC, a couple of meetings of the computer strategy group were held in which specific technological developments were considered. The Chief Constable chaired the group, and present were the IT manager together with representatives from several operational and support departments. This group however was generally regarded as one that became far to immersed in technical detail without taking time to consider higher level aspects of direction - or strategy. However, in principal the recommendations of the NCC report were accepted, although only two extra posts were agreed. It was also agreed at the second of these meetings that an IT strategy review should be carried out by the newly formed IT department.

9.3.1. ISS FORMATION & THE PQR SYSTEM

During 1990 and 1991 an alliance was formed between a senior police Officer and XYZ Ltd. which was to be instrumental in the development of systems during the remainder of the 1990s. The Research and Development unit had instigated the purchase of a custody office application and a crime recording system from XYZ Ltd. after seeing the systems demonstrated in an English Police Force. The Officer in charge of the IT

department became aware of this development, this person becoming the principle contact between the company and Case D Police Force.

In 1992 an IT strategy document was produced by the Officer in charge of the IT department. Within this document, strategy is described as,

> 'simply a plan for building a bridge between what information is available now in the Force and what is likely to be required in the future and the most cost effective use of technology to implement the plan.' (Case D Police Force, 1992, p.1).

The objective expressed within the document is to,

> 'develop a strategy that is clear, achievable, financially viable, which encompasses the annual objectives and which will be fully endorsed by the Chief Constable's Computer strategy Group' (Case D Police Force, 1992, p.1).

The document referred to objectives (see Appendix 5) which were to be encompassed in the Strategy, and which had been submitted earlier that year as a part of the annual development of Departmental and Force objectives. The IT Strategy document sets out a review of the existing systems together with a plan to develop and implement a suite of applications from XYZ Ltd. over the next two years. No other firms are considered in this document, and no suggestion is made that a tender should be placed in order to attract interest from other suppliers. The strategy document also suggests the implementation of PRINCE as a project management method through which the project could be managed, although in fact nothing further happened in respect of PRINCE at this time. The document is primarily an overview of what had been delivered technologically, and what was planned in the short to medium term. The document addresses how this is to be done to a limited degree in relation to the objectives which are set out in Appendix 5, but the question of *why* this should be done is not considered. The IT strategy document was a report upon activity in progress in relation to what was to become known as the PQR system, and which was to form the basis of IT development in the Force throughout the 1990s.

The principal thrust of this development was the CCRS/PQR system in association with XYZ Ltd., and a PRINCE project management structure was outlined as providing the means of overseeing the strategy. It was at around this time that the strategy group

ceased to meet, this coinciding with the departure of the officer leading the IT department on secondment.

The ISS set out in the Fourth Development Plan in 1990 and the IT strategy document of 1992 were similar in that neither set out a business case for the specified developments, and neither sought to articulate how they would link to the strategy being pursued within the Force overall.

An agreement was reached with XYZ Ltd. by the IT Department acting on behalf of the executive for the development of a suite of applications for Case D Police Force, initially relating to custody recording, crime reporting and road accident data recording. These applications had arisen from discussions between the head of the IT department and XYZ Ltd.. This suite of applications was the precursor to a system that was to be known as the PQR system within the Force. The nature of the agreement between the Force and XYZ Ltd. was described as a developmental relationship (Case D Police Force, 1993) whereby a quarterly fee was paid to XYZ Ltd. for development of systems, the intention being that XYZ Ltd. could then sell these systems on to other Police Forces. There was no contractual agreement between the Force and XYZ Ltd., and consequently no contractual deadline or penalty clauses for example. The exact nature of the agreement between the Force and XYZ Ltd. was to cause concern throughout the life of the project, although one of the key benefits alluded to in project documentation was a cost saving relative to other Police Forces amounting to "hundreds of thousands of pounds" (Case D Police Force, 1993). Interestingly, the exact manner in which the relationship between XYZ Ltd. and the Force was forged was something that no-one, and for that matter no documentation, seemed able to shed any light upon, and nor were any savings ever identified.

From 1992 onwards was described as a time of crisis management in relation to IT, as frustration with the CCRS system led to numerous meetings which were held to decide whether to abandon the project. Three years after the recommendation by NCC, a civilian IT manager was appointed in October 1993. However, the CCRS/PQR project was kept separate from the IT department, with control residing with two Police officers in the project team, and this provided a source of ongoing tension between the two areas. This was never resolved, and only ended when the project team was eventually

disbanded in 1995, although this then meant that the staff in the IT department felt that they then had the PQR system dumped on them.

The IT manager then sought to establish a group to address strategic issues associated with IT, although this took some time to set up. It was not until March 1995 that a new IT related strategy group convened, with the group meeting approximately every two months for the next couple of years. The IT strategy group was initially responsible for looking at all areas of IT in the Force with the exception of the PQR project. There existed a couple of project groups sitting under the IT strategy group, looking at issues associated with the development of e-mail, and a communications project. However, the PQR project sat outside the responsibility of the IT strategy group, and was instead overseen by a separate project board, albeit that one member of the strategy group sat on this project board as well. The Police officer who had overall responsibility for the IT department at this time was eventually able to persuade senior officers that the PQR project should be under the remit of the IT strategy group, and not separate from it. It was not until January 1996 that this happened, at the same time that the project board and the project team were disbanded, with responsibility for PQR being passed to the IT strategy group and the IT department respectively. The reason for the disbandment of the project team was that with Phase One of the project at an end, the officers should be allowed to return to other duties having been seconded to the team for over three years, and particularly to allow one of the Police officers to broaden his experience with a view to gaining promotion. The decisions, regarding the disbandment of the project team, and the notional end of phase one were decided by two senior Police officers who were members of the project board.

The establishment of a new strategy group at that time was described by a senior member of staff, who said that as there was,

> "no strategic direction for anything .. It would probably have been more difficult to change if that old [strategy] group had been in existence, because it wasn't there and there was nothing it was really quite easy".

The strategy group comprised a chief superintendent chairing the group, an area commander, the superintendent operational support, a sergeant representing users, the IT manager, the communications manager, the force finance officer, and the data protection officer.

The operation of the strategy group in 1995 was described by one of its members thus,

> "Well, we make some statements about what we are going to be doing. For instance at the last but one meeting it was formally decided that we would extend our data network to these one-man stations. So that .. so that's a one line statement of strategy that we decided upon. You'd probably find that two meetings ago there was another one about something else, and you could probably crawl through the minutes of this group which you could piece together and produce a page or two of where we're going. So, another thing that that group does is commission projects. It does that with .. because it hasn't got this formal framework of a strategy to refer back to it has a sort of sub-conscious idea of what the strategy is, and hence kicks them off in relation to that."

This sub-conscious idea of strategy was alluded to by all of the senior staff involved in the strategy group. Since the published IT strategy in 1992, nothing further had been published as an IT strategy for the Force, although each member of the group said that they felt that each of others would agree with them as to what the strategy was for IS, even though they had never set it out it formally. One of the reasons for this given by one member of the group was that no business plan had been produced for the Force, and hence it made it very difficult for an ISS to be produced in support of something that was not there. As one senior member of the IT strategy group commented,

> "we haven't yet at a senior level managed to get that message across, that there's no point us writing an IS/IT strategy that sets the agenda for the next five years if it conflicts with the business plan. Just on a .... basically, if we have a strategy which says, the data-network will go to these places, and in two years time they're going to close these places down ... I mean, so. One, the IT strategy needs to have a business plan, but we haven't got a business plan ... in any formal sense, so it's difficult for us to have a formal IT strategy".

In 1995, an IT strategy document was drafted for circulation amongst the strategy group, and set out what was currently happening in respect of IS together with a stated intention to continue this development. The development referred to was the PQR system. This discussion document was never formalised however, and just lay in a file following the resignation of the IT manager from the Force in June 1996. The document's main point is that without any business strategy available for the Force it is hard to develop a meaningful IT Strategy as this involves guessing operational requirements. Beyond this, the document sets out a review of current and likely future needs in terms of software, hardware, networks, and staffing.

While the PQR system continued to be developed, a lot of the work of the strategy group was concerned with addressing the problems being experienced with PQR. 1996 and 1997 saw IT developments continue, as outlined previously, while strategy was driven by circumstance, in particular, the need to ensure that PQR and the HOLMES system were both year 2000 compliant. Throughout 1996 and 1997 the IT strategy group continued to meet every three to four months, although no formal strategy was produced. Following a meeting between of an IT users group in July 1997, a meeting of the IT strategy group in September of that year agreed that the PQR system was inadequate for the needs of the Force, and develop a new ISS

In May 1997 an inspection by the HIMC led to a couple of recommendations regarding strategy in the Force. One recommendation was that a corporate business plan for the Force should be produced as soon as possible. Linked to this was another recommendation which said that an ISS should be produced as soon as possible, taking into account the corporate business plan of the Force (HMIC, 1997a, Recommendations 2 & 5). Despite this, an ISS was not produced. Once again the IT staff said that the development of the new ISS had to await the release of a new business strategy for the Force. Unfortunately, the production of the latter was delayed until September 1998, which meant that it was not expected that the ISS document was not likely to be produced until the early part of 1999. This meant that the Force continued to operate without a formal ISS. By mid-1998 the IT staff were of the view that PQR would be retained after all, and would probably remain as the main IS for at least another five years until applications from the National ISS (SPISS) became available.

Most of the IT staff commented in mid-1998 that the IT department responded to a series of initiatives as they arose rather than moving in pursuance of any particular strategic aims. The ISS amounted to a concept of maintaining PQR until such time as application modules became available from the Scottish Police ISS This continuing lack of formal strategy was commented upon by the HMIC in a follow-up visit, noting the pressures upon the I.T staff as a consequence of this situation, whereby,

> "without a published force IS/IT strategy, the Information Technology Department is requiring to continually explain and link departmental proposals to a concept, rather than to a hard copy document which the rest of the force is aware of and committed to." (HMIC, 1998d, Sec.4).

This situation had by and large existed for the majority of the decade, during which time the PQR system had formed the basis of IS development in the Force. Nonetheless, throughout this period, senior staff were satisfied that there was a clear ISS, albeit not formalised in documentation. It is at this point we can look at the PQR system in more detail, given that this formed the focus for ISS during the 1990s.

9.3.2. DEVELOPMENTS IN THE PQR SYSTEM

Initially, the applications from XYZ Ltd. were absorbed within what was known as the CCRS project, which was principally intended as a facility for recording crimes, interrogation of data (referred to as criminal intelligence), and for producing related reports as necessary. In addition, a custody recording application from XYZ Ltd. was introduced into the Force. These modules were piloted at a Police station in Aviemore, going live in January 1992. While the system was had been intended as a means of managing the reporting and processing of crimes, the systems was being used in practice as a means of recording all incidents with which the Police dealt. It was later recognised that this unintended usage was at the root of the main problems that were being experienced in the pilot scheme, in that the system became extremely slow to operate, and crashed frequently. However, what was not clear was how this unintended usage had come about: it seemed that in deciding to take the system from XYZ Ltd. based upon its usage in an English Force, the actual usage in that Force compared to the intended usage at Case D Police Force had not been considered.

In February 1993 a debate about the future of the system was ongoing when the Police officer who was managing the IT department was seconded away from the Force for a three year period, and another Police officer was appointed to manage the IT department, this time coming from the training department. This secondment in itself caused some resentment amongst officers, as it meant a promotion to the rank of Superintendent for an officer who had only recently reached the rank of Chief Inspector, and who had risen through the ranks working with IT. For whatever reason, it was said that this caused some senior officers to resent the CCRS project even more.

Consideration was given by the Chief Inspector who took control of the IT Department to abandoning the system completely, and waiting for the emergence of national IS

applications in several years time. However, in the event he was persuaded to stick with it after assurances from technical staff and from XYZ Ltd. that the problems were teething problems only. Following this, it was recognised by the Chief Inspector who was now responsible for the IT department that project management needed to be rethought. One of the reasons for this was that the supplier, XYZ Ltd., was running virtually all aspects of the project, with little control by the client – Case D Police Force. A request was made to appoint a senior Police officer, of Superintendent rank or above, to lead the project, although in the event a junior ranking officer, a sergeant, was appointed to lead the project team, together with a Police constable.

The project team commissioned a series of new applications to be developed by XYZ Ltd., and work on these continued during 1993 and 1994, following publication of the PID by the project team in September 1993. One of statements given particular emphasis within this document was that in order to repeat past problems with IT,

> "the philosophy to be adopted therefore, to prevent history repeating itself, must be: **UNDER-PROMISE and OVER-DELIVER at all times**" (Case D Police Force, 1993, p.3; original emphasis.)

As time progressed, most staff spoken within the course of this research considered that the project had achieved the exact opposite of this statement. Part of the reason for this was attributed to the dominance of the supplier, the apparent remoteness of the project team from both the IT department and from users in the Force, and a failure to put in place an adequate technological infrastructure. In this respect, a comment of one member of the executive in 1996 was perhaps instructive; in reflecting upon the continued problems with the system he said,

> "the problem with PQR was that we tried to do it on the cheap .. that was the problem".

No-one spoken with provided an assessment which contradicted this view.

During 1994 and 1995 all of the applications piloted at Aviemore were gradually implemented across the Force area, with the final two command areas going live in July 1995, with the exception of an application for producing crime reports. The project team continued to work with XYZ Ltd. further developing the applications within PQR, and gradually implementing these upgraded applications across the Force area. Although by mid-1995, PQR had been installed in all of the main Police stations in the Force,

performance of the system was causing considerable concern to those using the system, and to the IT department who were receiving the brunt of complaints. The system had become slower and slower. An example of the seriousness of the situation was that an area commander of the busiest division in the Force refused to allow the system to be used for crime recording and the preparation of crime reports. The reason for this refusal was that he, and his staff, were concerned that the poor reliability and slowness of the system would negatively affect the ability of the Police officers and civilian staff to produce reports for the Procurator Fiscal.

One issue that caused frustration for IT staff who were faced with trying to improve the performance of the system throughout the life of the PQR project was the absence of a data model for the system. This also caused them problems when trying to access data from the system, as they had no idea of the underlying data structure. Despite repeated requests for such a model, once the IT staff became aware that there was no documented model, XYZ Ltd. varied in their response from saying that they could have one, to saying that one was being produced, to finally saying in 1998 that they could not have one as a matter of principle - shortly before the company collapsed. Allied to this was the absence of any formal documentation pertaining to the system, except for the aforementioned PID which was produced almost two years after the project started.

9.3.3. ISS AND MANAGEMENT CHANGES

On the IT management front, in the latter part of 1994 the Police post as IT manager had been redesignated to have responsibility for a range of management services departments in addition to IT, and hence, the civilian IT manager assumed sole responsible for IT, on paper at least. Indeed, in practice too this was the case as the Police officer with overall responsibility was content to allow the IT manager to assume the management of the department. However, other Police officers in the Force were said to operate as if the Police Officer was still in charge of IT, which was seen as a source of frustration to both.

In September 1995, the officer who had originally been leading the I.T department up until 1992 returned from secondment to take up his post in management services, which now incorporated responsibility for IT amongst other duties. This officer was recognised

as having a more hands-on approach to IT, which caused some resentment amongst some of the IT staff who felt that they were again being directed by the Police officer rather than managed by the IT manager. During the first half of 1996 six of the ten civilian IT staff resigned, including the IT manager. The small number of staff in the department had necessitated a considerable degree of specialism amongst staff, and the loss of so many staff placed an additional workload on those remaining. At the end of 1995, the project team were disbanded, with the two team member returning to other duties. In January 1996 Sole responsibility for PQR was then transferred to the IT department, although up until this point the IT staff had had comparatively little involvement in much of the development of the PQR system.

The members of the PQR project board decided towards the end of 1995 that Phase one of the project was coming to an end, and that the project team and the project board should be disbanded, which they were in December 1995. At the same time, the IT strategy group were given responsibility for the PQR project. It was then decided by the Police Officer with responsibility for IT that a review of PQR should be carried out with a view to developing what was being called phase two. While some senior officers were concerned that they should get the basic PQR system working before developing it even further, the review was aimed at both improvement and enhancement. The Phase two review occurred between July and September 1996. The report was not seen as being well received by the officer in charge of IT because of the critical comment made regarding PQR, and the wide range of developments recommended.

During August 1996, a new Chief Constable was appointed to the Force, this person having come from leading a Force that was perceived to be quite advanced in the use of IT. Consequently, many staff viewed the appointment as an opportunity for the enhancement of IT in the Force, a view reinforced after the appointment of a new IT manager in September 1996. Following the PQR Phase 2 report, a meeting was held between the Police officer overseeing IT, ex-members of the project team and selected staff from the Force. Discussion of the system followed with a closing message that further development of the system was ongoing. The nature of the relationship with XYZ Ltd. had by this time changed, whereby a seven year contract had been signed with XYZ Ltd. for development and maintenance of the system. The signing of this contract had not been subject to discussion with the IT staff, and indeed was there was little

awareness of the nature of the relationship with XYZ Ltd. amongst senior staff in the Force.

In 1997 two further IT staff left after a review into the terms and conditions of civilian staff had failed to affect their gradings, bringing the staff turnover during the preceding twelve months to 80%. Consequently, 1997 proved to be a difficult time as new staff were brought in to a department that was facing major demands. Not least amongst these was preparation for the year 2000, as the PQR system and the HOLMES system required to be updated. In addition, the staff were working towards the implementation of e-mail for the transmission of reports to the procurator fiscal which had a deadline of September 1997. In 1996 XYZ Ltd. had been awarded a contract by the Police officer overseeing the IT department to implement the necessary e-mail functionality to allow such transmission. By mid-1997, the IT manager was informed that XYZ Ltd. were not after all going to implement the required e-mail functionality, but only a part of it. This meant that the deadline was missed, and that further costs had to be incurred in setting up the e-mail service, which was not implemented until 1998.

During 1997, little further progress was made in developing new applications for the PQR system, although some enhancements were made to features within the system. These changes were viewed positively by the users of the system, given that they addressed in particular the considerable problems surrounding the entry and manipulation of large amounts of text. In July 1997, a meeting was held between senior members of the IT staff, various other staff from around the Force area who used PQR, including various senior Police officers including the Chief Constable. At this meeting, a number of presentations were made in which continuing problems with PQR were made clear, reiterating the findings of the 1996 study. One of the issues raised at this meeting was with regard to the lengthy contract which had been awarded to XYZ Ltd. by the Superintendent overseeing the IT Department. The view was put forward from the Police officer overseeing IT that this contract could be changed in favour of the Force. A few weeks later, at a meeting of the ISS group in September 1997, it was accepted that the rather than develop PQR further, a new system should be considered, and a working party was formed to develop this. This group only met twice however before a further change occurred.

During the early part of 1998, a change occurred in the Police management of the IT area, with a new officer coming into the management services post. This person was seen as someone who less inclined to have such a hands-on approach to IT as the previous incumbent, a move that was welcomed in the IT department. By this time, thoughts of abandoning the PQR system had been put to one side in the light of the developing national strategy for IS in Scotland. However, the Force were still dependent upon XYZ Ltd. for maintenance of software, although this was put in some jeopardy when the firm ceased trading in May 1998. Within a short space of time it transpired that XYZ Ltd.'s business was being taken over by another organisation, Zedan, who would continue to provide support for the PQR system. Further hardware upgrades occurred at the end of 1997 and early in 1998 which had seen system response and reliability improve considerably. By mid-1998 it was anticipated within the IT department that the PQR system would remain in usage for at least another 5 years, with the gradual replacement of application modules by those emerging from the National ISS

Throughout 1997 and 1998 the nature of management of the IT area remained an area of concern to the HMIC. The HMIC had commented upon the lack of a direct line of communication between the computer manager and the executive level in 1997 (HMIC, 1997a). Upon inspecting the Force again in 1998 the HMIC was disappointed to find that the situation had not changed, with a Police officer still reporting on behalf of the computer manager to the executive level, although it did seem that the computer manager's views were being heard at the highest management levels (HMIC, 1998d).

9.4. DISCUSSION

In seeking to understand ISS formation at Case D Police Force we have identified several issues which have emerged from our analysis of the case study. In addressing ISS there are a range of other issues which are embedded in a broad stream of organisational practice (Mintzberg, 1978; Johnson, 1997) which we must examine if we are to grasp the intricate socio-political nature of ISS formation (Waema & Walsham, 1990). In order to draw out themes which we have found to be important for our understanding, we will concentrate our analysis of the case in terms of our investigative framework discussed in Chapters Two and Three.

9.4.1. INFRASTRUCTURAL AND HISTORIC ISSUES

There was a history of developing five year plans within the Force, the first having been produced in 1975 by the then Chief Constable. Subsequent plans had been produced, not always for five years and sometimes with gaps between the expiry of one and the creation of the next, and generally they had been produced by a small group of the most senior managers. Thus the Policy Forum continued a tradition of policy making, but one that represented an approach that sought to be more inclusive in policy setting. Except for the production of an IT strategy document in 1992, and a draft discussion strategy in 1995, IS was developed without a formal strategy, described as subconscious strategy by members of the strategy group. Ironically, while the focus of IS efforts in the Force were centred upon the development of PQR, responsibility for PQR was kept separate from the IT strategy group until January 1996, some years after the project had commenced.

The technical infrastructure in 1993 was seen as uncoordinated, and had been developed in a haphazard manner. Applications had been developed in isolation, and indeed little IT existed in the Force outside of the main urban area. The systems reflected types 1 and 2 in our classification of IS in Policing, (Table 6.1.). While this lack of IT maturity (Galliers & Sutherland, 1991) relative to other sectors presented an opportunity to utilise IT in many areas of Policing (Home Office, 1993), it also presented an opportunity to some staff to influence this development, and to make a positive impression for their own career advantage (Weatheritt, 1986; Ackroyd et al, 1992). While Galliers & Sutherland (1991) make the presumption that professional IT staff will be involved in developing ISS and IS services, no matter what the stage of development, in this Case, it was Police Officers alone who acted as the developers of IT. This can be seen as representative of a cultural facet of the Police service, people who like to see themselves as pragmatists who will just get on and do whatever needs doing (Holdaway, 1989; Reiner, 1994), whether they have been trained for it or not. That aspect of culture is changing with increasing the civilianisation of specialist positions (Savage & Leishman, 1996).

The IT that was in place reflected the work of the Police Officers in the Research and Development unit, and can be seen in terms of the exercise of power through the manipulation of resources, in particular expert knowledge in and control of IT. We qualify use of the term expert as these people were trained Police Officers, not IT professionals. It was this position that enabled them to buy-in network technology which was subsequently seen as handicapping the Force through use of proprietary network and terminal protocols, rather than industry standard. These protocols had been acquired at the recommendation of the supplier, something which tends to reinforce the view of other senior Officers that the Police are naive when dealing with suppliers.

The ability of staff to control IT development in this way can be seen as a consequence not just of a lack of ISS, but also as a result of the withdrawal of the most senior management from involvement with IS. While the Chief Constable sat occasionally on the computer strategy group, in practice this did not discuss strategy, but particular technical issues. Hence, this discussion tended to go unchallenged. The Chief Constable, and Deputy Chief Constable were generally seen as disinterested in IT personally, and willing to leave the development of IS completely in the hands of whoever was leading the IT department. The effect of this, rightly or not, was for this to be regarded as a withdrawal by senior management from the ISS process, something which can leave a vacuum for others to fill (Levine & Rossmoore, 1995).

The changes in structure throughout the duration of our fieldwork were continuous. While structural change at a strategic level took place just before PQR emerged, in 1991/92, and later in 1997/98, there were ongoing operational changes. The senior police Officer leading the IT Department changed in 1994, reverting back in 1996. The person leading the IT unit up to 1994 and after 1996 was seen as someone who was very much hands-on, and with a strong interest in, and perceived knowledge of, IT. This style of operation was not appreciated by the civilian IT staff, both because of the way in which this person dominated both strategic and operational activity. Following the return of this person in 1996, 7 out of the 10 IT staff left the Force, which in itself caused problems, given the specialist knowledge which each had. The second Officer who took charge of the IT department was regarded as someone with a more hands-off approach, who while interested in making the systems work, was content to leave the operation of IT to the IT staff.

The senior management team also changed during 1996 and 1997, with a new Chief Constable and Deputy Chief Constable. The new Chief Constable was seen as someone with a keen interest in IT, and was regarded as something of a champion for the IT department following what was seen as years of exclusion from the senior levels. Nonetheless, the IT manager was still not included in senior management discussion, a fact which drew criticism from the HMIC (HMIC, 1998d).

In addition, the ongoing tension due to the structuring of responsibilities for the PQR project, between the Project team and the IT Department, only added to the feeling that IS was developing against a background of mistrust and change. Historically, the purchase of a system in the 1980s that was regarded as a disaster by many people was reflected in their comments regarding problems that arose with PQR - it was perceived in terms of, "...oh no, here we go again!", which demonstrates the view of IT as subjective phenomena, as social actant (Latour, 1995).

In relation to strategy, we note that an attempt was made in the 1992 IT strategy document to take account of the Force objectives by referencing the objectives of the IT department, which had themselves been developed as part of the Force strategy process earlier in 1992. However, this was perceived as a token gesture, as the Fourth Development Plan had been published two years earlier (Case D Police Force, 1990) and the IT strategy document makes no reference to this plan. The lack of linkage between ISS and what the business wants to do is generally regarded as a problem (Atkins, 1994; Galliers et al, 1994a; Auer & Reponen, 1997).

9.4.2. SOCIAL RELATIONS

In considering the impact of social relations upon the practice of ISS formation, we tend towards suggesting a shifting power configuration relative to ISS formation from *Political Arena* to *Instrument* (Mintzberg, 1983), although the way in which an internal coalition is perceived differs from the first two case studies. This is shown in Table 9.1. below.

Characteristics	Perceived as shifting : *Political Arena* to *Instrument*:	Evidence:
External Coalition (EC)	Dominating (having been passive)	A group of influencers operating through governmental remit, if not explicitly in concert; Increase in activity of HMIC, audit commission, SPISS; funding linked to initiatives (e.g. best value from ISS); external coalition seems to have become dominating after being passive in relation to ISS.
Internal Coalition (IC)	Politicized	Discipline based hierarchy; power vacuum at executive level re: ISS; focus of power for ISS around senior officer, with expert roles filled by appointed staff; these roles face challenge following civilian expertise and change in senior staff. ISS stagnation. Project Board set up to satisfy perceived bureaucratic expectation of external influencers, but not seen to be influential for ISS.
Apparent Power Relationship	EC ==> IC (IC increasingly controlled)	IC dominated ISS, & impact of SPISS, HMIC was followed by ISS reflecting EC.
Implications	Eventual replacement of one dominant influencer by another	ISS for PQR initially controlled from IC. Following stagnation in ISS formation, increased acknowledgement of perceived impact of HIMC, SPISS, CCJIS, on ISS.

Table 9.1. Power Configuration Analysis (based upon Mintzberg, 1983)

One of the findings of the analysis in Table 9.1. is the apparent shift over time which we noted in the power configuration (Mintzberg, 1983). Although we tend towards viewing a shifting power configuration, from *Political Arena* to *Instrument*, the internal coalition, led by one influencer, was initially dominant as ISS formation revolved around PQR. The external coalition could be described as passive. Following the departure of , and after the majority of PQR applications were installed, ISS formation was perceived to have slowed. Following stagnation in ISS, and a perceived level of dissatisfaction with the performance of PQR, an external coalition became increasingly dominant. ISS formation was seen as increasingly focussing on SPISS, with perceptions of the role of the HMIC in commenting upon ISS, and of the increased support for SPISS by the Scottish Office being said to lead to a recognition that ISS formation on an

independent basis for the Force would stop. As in the previous case studies, the implication of the analysis is that once ISS formation becomes dominated by the external coalition, it becomes extremely difficult for internal coalitions to a shift to another power configuration (ibid.) - even if they wanted to.

We now move on to discuss themes that have arisen from the case with regard to social relations, and which have developed as a result of our analysis of ISS formation

9.4.2.1. The Importance of Roles

The exercise of power through the manipulation of resources continues to be a useful means of understanding the role of the Officer leading the IT Department from 1992 to 1994, and from 1996 until 1998. The person in this role had been a member of the Research and Development unit responsible for IT, before moving to lead the newly formed IT Department. This person demonstrated a combination of interest in IT, was perceived as having a high level of knowledge about IT, and also had authority to develop IT. Unlike the other Cases, this person had authority over IT because the management levels above were not interested in taking responsibility for IT. The Chief Constable was effectively appointed to lead the Computer Strategy group by this Officer, although in addition to attending less than three of the meetings, the Chief Constable made it clear the IT was the responsibility of the Officer heading that department. Persuading the Chief Constable to agree to chair the Computer Strategy Group can be seen as an exercise of power by the Police Officer leading IT, in that this was possible through the Officer's perceived knowledge of IT which gave credence to his insistence that the Chief Constable chair the group. The appointment of the Chief Constable to the group was to add a symbolic weight to the role of IT in the Force, and also to demonstrate to outside bodies such as the HMIC that IT was being taken seriously. This latter point can be seen in the light of the exercise of power through the manipulation of perception, in this case manipulating symbols for internal and external consumption.

The appointment of a civilian IT manager in 1993 could also be seen in terms of symbolism, in this case for the benefit of the HMIC that a civilian was now leading IT, and for internal staff that there was now an expert in place. However, in practice, the

appointment of this person again demonstrated the exercise of power through the manipulation of resources, in this case in terms of authority, and also in dominating decision making processes. The IT manager was actively managed by the Police Officer leading the IT department, which caused tension between the two people. This was because the IT manager had been recruited to lead IT but found he was being expected to take orders from the Police Officer heading IT, and also because the Police Officer heading IT now found someone who had expert knowledge in the area which was a challenge to his own position.

In addition, in terms of exercising power by controlling decision making processes, the Police Officer leading the IT area was able to filter materials coming into the IT department, so that he was able to control responses and actions, passing on material as he deemed appropriate to the IT manager. This element of control did little to foster a sense of having authority to match the responsibility for IT which other Officers in the Force took the IT department to have. This sense of authority not residing with the IT experts was exasperated by the influx of problems that were occurring with the CCRS/PQR system - which everyone took to be the responsibility of the IT staff.

Between 1994 and 1996 the situation for the IT Manager changed when the Officer leading IT took a secondment with the Police Advisory Group on IT (PAGIT) in London. The Chief Inspector who took his place encouraged the IT manager to take authority and responsibility for IT, and to attend meetings with other senior managers in the Force, which had not happened previously. This also demonstrates an exercise of power through the use of authority, but in a positive sense - the exercise of power as emancipation rather than as oppression (Clegg, 1989; Hardy, 1996). The return of the Officer from secondment in 1996 saw the IT manager leave the Force. A new IT manager was recruited and worked under a similar relationship to the first civilian IT manager.

9.4.2.2. Relations with other Agents

We find in this section that the comments that we made in Section 8.4.3 are entirely appropriate here also, in that throughout the course of ISS formation, relations with

several agents were found to be important. Without repeating the argument made there, we would just highlight that the combined presence of what were seen as governmental groups, such as the Home Office, the Scottish Office, and the Audit Commission, were again important in shaping the views of senior Officers regarding the concept of strategy. Continual reference was made to these bodies in discussions about strategy, and ISS in particular.

Similarly, the comments made in Section 5.3.3.4 regarding the HMIC are also appropriate in this case study. One of the surprising aspects here is that despite criticism by the HMIC (1994, 1997) regarding the lack of an up to date ISS, the problems with PQR, and in 1997 in particular, the limited role given to the IT Manager, is that very little was done to address these concerns. By 1998, there was still no ISS, it was decided that PQR would remain in place until SPISS applications became available, and the role of the IT manager was "under consideration". Whilst our argument that we can think of the relations with the HMIC in terms of the exercise of power through the manipulation of resources, this is not a one way relationship by any means. If, as in this case staff in the Force did not do anything to respond to the comments, this is less a demonstration of perversity on the part of the Force, but rather an indication of the dialectical nature of such relations.

The relations with XYZ Ltd. were interesting. This relationship, although officially a supplier / customer relationship between XYZ Ltd. and the Force, the consensus view was that the relationship was conducted on a personal basis between the Officer leading IT and the owner of XYZ Ltd.. The lack of formality in the relationship, can be seen in relation to the exercise of power through the manipulation of resources, as XYZ Ltd. were able to utilise their control of development of and project management for the PQR system to influence the relationship in their favour. This was evidenced by their ability to secure a seven year maintenance contract in 1996, a decision which seemed odd given the continual problems with PQR and the impending arrival of applications for SPISS. There was not contract specifying what XYZ Ltd. would deliver, although there was what was termed a developers contract, although what would be developed remained unspecified. The nature of this relationship, and the level at which it was undertaken, without formality in negotiations or project managing on behalf of the Force, meant that XYZ Ltd. played a key role in influencing what happened with PQR. We can see here

evidence of the exercise of power through the management of resources, for example where XYZ Ltd. kept control of the data model, where they did not issue documentation for PQR, and where they controlled project management through their expertise. Given that both the PQR system and the relationship with XYZ Ltd. was subject to criticism from many senior staff in the Force, the ability of XYZ Ltd. to sustain the relationship can be seen to rest predominantly with the authority of the Officer leading IT, a further exercise of power through the management of resources, namely his authority as a senior Police Officer, but also through perceptions of expertise in relation to IT.

Finally, again as with Section 8.4.3. we can also think of these agents in terms of the exercise of power through the power of the system, in that there is a sense of acceptance that these agents are part and parcel of the system, the web of relations within which the reality of organisational practice is constructed and reconstructed. The operation of these agents is out of the control of any of the people in the organisational setting, but should not be thought of as being in the hands of others either. Instead, it is the position and operation of these institutions of practice relative to one another through which a web of power relations can be considered operational.

9.4.2.3. Structures and Processes in Relation to Decision Making

We have already commented upon the role of the Officer leading the IT Department in controlling decision making processes within the IT Department. However, we can see the exercise of power in relation to the manipulation of decision making processes more generally regarding ISS. Initially, the IT strategy in 1992 was written solely by the Officer leading IT. After this, and particularly following the reports from Knowledge Technology and the NCC, the structuring of formal committees and groups was enacted officially for the development of ISS. These groups acted as rubber stamping groups to proposals put forward by the Officer leading the IT department, together with the project team.

In practice, decision making was undertaken at informal meetings between the two Officers in the project team, and the Officer leading IT, although it was this Officer who also sought to set up formal decision making processes for ISS. While final authorisation for decision in relation to ISS took place through the formal structure, the

decisions regarding the nature of ISS, in practice through the development of PQR, had already been taken. ISS was thus dominated by a small group of people, in particular from 1993 to 1995, the project team and the head of IT, where decision making was largely informal, albeit that most of the same people participated in formal decision making structures. The setting up of formal processes can be seen in relation to the exercise of power through the management of process, whereby the actions of the Officer leading IT can be seen as having influenced ISS by managing the access to the processes, as well as the process itself. This supports a political view of strategic decision making (Pettigrew, 1977; Mintzberg, 1978), and can be viewed as demonstrating the problem of formal rational views of participation and consensus in decision making.

In addition, the management of these processes, with informal and formal processes in operation, can be seen as a means of providing an illusion of formality for the benefit of both senior managers, and the HMIC, which suggests the exercise of power through the manipulation of perception. Here, we can see the use of formality to mask the actual decision processes, highlighting what Gouldner (1954) termed mock bureaucracy.

These decision processes were opened up to wider debate after the arrival of the new Chief Constable in September 1996 as this senior officer took an active interest in IT, and in ISS. That said, aside from decisions surrounding attempts to try and improve the performance of the PQR system, the only other strategic decision taken before 1998 was to stop developing PQR and to await the arrival of new applications from SPISS. This decision was taken by the Chief Constable, at a series of three meetings to review ISS with the IT manager two of the IT staff, and four senior Police Officers.

9.4.2.4. Perception and Meaning

At all times we are concerned with perception, as it is this that is central to the views that we have of what we take to be social reality. However, we can also think about the manipulation of perception as a means of bringing to our attention further aspects salient to ISS formation (Clegg, 1975; Chaffee, 1985). For example, the use of consultants in 1988 and 1990 to report on IT in the Force could be seen as a means of seeking to increase the legitimacy of IT (Brown, 1998), that is, seeking to manipulate the

perceptions of senior officers. This could be viewed as a means of securing spending on IS within the Force, both for an audience external to the Force as well as internally. The way in which groups can seek to legitimise their demands through the manipulation of perception has been noted by Pettigrew (1979).

There was perceived symbolism surrounding the IT disaster of the 1980s, with symbolic perception developing over time without the active participation of anyone in seeking to render symbolic meaning to that event. The use of consultants was viewed as an attempt to demonstrate to the HMIC that ISS was being addressed within the Force. Similarly, we found that people perceived the Force to be lagging in use of IT, which could be seen as rendering a subjective, symbolic aspect to IT.

It is interesting that the interviewees said that the word strategy was not a part of the vocabulary used within the Force prior to 1990. Language can be viewed as an important aspect of the manipulation of perception (Morgan, 1986; Choo, 1998), and has also been recognised in relation to ISS (Bloomfield & Coombs, 1992; Jones, 1995). The introduction of language that used the term strategy in relation to IS was seen as being an attempt to demonstrate the seriousness with which IS was now being addressed. In this case, the role of senior officers was considered to be influential in shaping a degree of interest within the organisation in developing IS, and in particular in affecting the perceptions of other people where senior management were seen to actively engage with IS (Levine & Rossmoore, 1995).

9.5. SUMMARY

In this case study, ISS formation was perceived to be closely related to the PQR system, which was developed and installed. While ISS formation was regarded to have stagnated after 1996, we have highlighted the increased domination by the external coalition, categorising ISS formation as shifting from *Political Arena* to *Instrument* (Mintzberg, 1983). That said, we have also discussed four themes which we have identified as being important in our understanding of the generative forces affecting ISS formation, and in particular the analysis has discussed the exercise of power in relation to all four conceptualisations outlined in Table 3.1.. We now move on to discuss case study E.

CHAPTER TEN - ISS FORMATION: CASE STUDY E

10.1. CASE E POLICE FORCE

The fieldwork for this case study was initially focused upon the practice surrounding the strategic decision to implement the Crime Management System, which formed the heart of an Office Automation Project within the Force, between 1994 and 1998. In this case study we conducted fieldwork during the period 1994 to 1998. In all, we interviewed 16 people in the Force, some on several occasions over the period of research. This was in addition to informal discussions with these and other people during the period of fieldwork.

We have investigated historic events associated with IS in the Force as it became apparent that these were important to our understanding of ISS formation. The development of ISS and subsequent implementation of a system provided the focus for our period of engagement, this being a prerequisite for validity in case study research (Pettigrew, 1985a; Yin, 1989).

10.2. BACKGROUND TO CASE STUDY

Case E Police Force is a large Force, with a Headquarters in a city, and having an authorised strength of 7,352 Police officers together with 2,115 civilian staff. For the year ending 31 March 1998, gross expenditure for the Force was £350 million. This compares to a figure of £300 million in 1993/94. It is a matter of concern to the HMIC (e.g. HMIC, 1998b) as well to those interviewed within the Force that the Force appears to be under-funded for capital expenditure. For example, the capital budget for IT for 1998/99 has remained constant from the previous year at £2.34 million, which the HMIC regarded as a considerable under-resourcing of IT given the size of the force (HMIC, 1998b). The total spend on IT, at 0.1% of gross expenditure, has been recorded as being the lowest as a percentage of revenue of all Police Forces in Britain (Kable, 1995). By comparison, similar size forces in England have been recorded as spending

more than five times as much of their revenue on IT as has been spent in Case E Police Force(ibid.). These figures go some way to explaining why despite being one of the largest Police Forces in Scotland, staff within the Force considered that IT had remained less developed than in other Scottish Police Forces. A report into Case E Police Force by the HMIC in 1998 observed that,

> "IT continued to be under-resourced, both in staffing levels and in revenue and capital funding. Research carried out during 1997 by the Force Inspectorate and the head of Communications and IT, in respect of the disparity of IT funding between [Case E Police Force] and other members in the family of forces (British forces of a similar size to [Case E Police Force]), showed the force to have half the number of IT staff of comparable forces. Total revenue and capital expenditure on IT (excluding telecommunications) was around one third of the level found in the same family of forces over the last 5 years" (HMIC, 1998b, Sec.4.2.).

That said, the opinion of those working in the IT area felt that in terms of funding, the Department had received a fair allocation of the resources available to the Force, and that funding issues were a reflection of funding made available to the Force as a whole, and not a reflection of internal funding arrangements.

10.3. INFORMATION SYSTEMS STRATEGY FORMATION

10.3.1. INITIAL STAGES: THE OFFICE AUTOMATION PROJECT

When the Force was formed in 1975, it incorporated a city Police Force who had a command and control computer system in place which was based upon mainframe hardware. This system had been designed to service seven territorial Divisions in the city, but following amalgamation it was expected to deal with the new structure which incorporated nineteen Divisions. This structure remained in place until the early 1990s when restructuring saw the number of divisions fall to fifteen. The formation of the Force in the mid 1970s coincided with a time of a severely limited budget which saw the organisation carrying almost 800 vacancies in an effort to balance budgets in the Region. Consequently, funding for IT was limited. During the 1980s, a personnel computer system was acquired, and a limited number of micro-computers for word processing were introduced at the Force Headquarters. These systems were introduced by local commanders and were not perceived to form part of a strategy of any kind. In

1987 the Chief Constable instigated a review of Force structure with a view to increasing the availability of Police officers for operational duties (Case E Police Force, 1987). This review was based upon a key policy statement prepared by the Chief Constable, which was,

> "In order to accomplish the prime objective of maintaining as many officers as possible on operational duties, reviews of the organisational structures, methods and procedures will be undertaken to streamline administration and identify opportunities for civilianisation and the introduction of new technology" (Chief Constable's Policy Statement to the Police Committee, December, 1987).

Following from this, in 1988, at the instigation of the then Deputy Chief Constable, a business case was developed with the assistance of staff from the Police Requirements Support Unit (PRSU) at the Home Office for what was termed an Office Automation Project. The then Deputy Chief Constable was said to be enthusiastic that any IT project was seen to be clearly linked to the business objectives of the Force, and for this reason the documentation includes reference to those objectives in three separate places, on pages 1, 2, and 6. The aim expressed in the documentation for the office automation project was described as,

> "to exploit information technology in the management of administration, relieving operational officers of time-consuming repetitive tasks and simplifying reporting procedures so as to concentrate resources on operational duties" (Case E Police Force, 1988).

The project was seen as representing an ambitious IT strategy for the Force providing a basis for IT development into the 21st Century (Brett, 1988), and had three broad thrusts to it:

- The development of a force-wide communications network
- The procurement of a new command and control system
- The development and installation of an office automation project

The business case was presented as being dependent upon a 12% saving in administrative overheads by freeing Police officers from excessive paperwork, with over 700 forms in use in the Force at the time.

The office automation project incorporated a number of applications, which included:

- word processing
- an electronic link to the Procurator Fiscal

- custody recording
- criminal intelligence
- crime pattern analysis
- a crime management system

An apparent difficulty with all of these projected applications, was said to be the continuing lack of finance. The Deputy Chief Constable who had instigated the project sought, but failed to get, funding from government sources. A communications network was established, with the X25 network system upon which it was based forming a backbone for later developments with electronic mail. Design started on a new command and control system, which it was envisaged would be implemented in 1991, In the end, the command and control system was implemented in 1992, following delays in software programming.

These developments were overseen by the Research and Development Department in the Force, which had responsibility for IT. They made use of IT services from the regional authority as necessary during this period, and were involved themselves in installing elements of the office automation project. In 1989, the Police officers in the department decided to buy and install four Bull DPS6 mini-computers in Divisions, although while they were doing this they became aware of developments in the use of PCs and network technologies which they felt were becoming more widely used. The development of an e-mail link between the Force and the Procurator Fiscal's office for the electronic transmission of documentation was seen as key aspect of the office automation project, to alleviate the production and distribution of paper based reports for the Procurator Fiscal.

During this period the computer developments in the Force were undertaken by the Research and Development department, which was staffed predominantly by Police officers. The department also had a programmer on secondment from the regional authority, and a member of civilian staff from the typing pool who had shown some interest in the use of IT was also working full time on the projects. In addition there was a small computer section in the communications department who oversaw the running of the command and control system and the HOLMES system. This consisted of four

Police officers and five civilian computer operators who were responsible for the maintenance of the existing systems.

When new developments were undertaken, the Research and Development department was able to turn to the regional authority's IT unit to provide assistance. In April 1990 a member of the regional authority's IT department was recruited into the Force as Principal IT Officer to work with the Research and Development department in reviewing current systems and to address the future strategy for IS in the Force.

10.3.2. DEVELOPING INFORMATION SYSTEM STRATEGY

The decision to develop the concept of office automation in the late 1980s cannot be seen in isolation from the serious shortages in Police officers that was being experienced. As a consequence of this, IT was seen as one means through which Police officers could be released from both an administrative burden, and also in many cases released from desk jobs for operational duties. Thus, while the documentation mentioned in the preceding section did not lead to the hoped for funding from central government, it did nonetheless form the basis of IT developments in the Force for the next ten years. However, while major projects were being suggested, and initiated, nobody in the Force had any responsibility for the concept of IS/IT strategy.

In April 1990 the then Principal IT Officer was appointed with an express remit to develop an IS/IT strategy, although he recognised this could not be undertaken in isolation from what was already happening. What this meant was that bulk of the IT strategy was already decided given that the Force was committed to a new command and control system, and the office automation project. He was told to spend the first few months of his appointment going round the Force area, speaking to as many staff as possible, familiarising himself with Police operations, gauging what was happening with IT at that time, and considering what they should do in the future. Consultation was generally regarded as appropriate, but the raising of expectations where finance was limited and no infrastructure for development existed was a problem according to one of the senior Police staff,

> "if you go to a Division and say what would you like from your technology, they'll give you a list as long as your arm and they'll take it tomorrow".

After six months the Principal IT officer had produced an ISS document for a five year period, although as he recognised, it did not have the level of detailed analysis initially hoped for given that the Force was so large and that something had to be put on paper in a reasonable amount of time. Within the IS/IT strategy it was stated that a main intention was to support the mission of the Force, namely: To deliver the highest possible standards of policing, addressing community needs, expectations and concerns in a professional, caring, and sensitive manner.

The key recommendations of the IS/IT strategy were (Case E Police Force, 1991):

- To continue to develop the Office Automation Project; the main application areas identified as constituting the Office Automation Project should be:
- Command and Control (as a basis for both the Force's operational requirements and for Office Automation)
- Crime Recording
- Crime Management
- Custody Recording
- Case Management
- Enquiry Handling
- Property
- Licensing
- Warrants
- To establish a robust network across the Force, with a Division based structure, utilising emerging industry standards based upon PCs and LANs
- To standardise hardware and software on agreed industry standards across the Force
- To adopt a modular approach to development of applications
- To enforce common data standards across the Force
- To see single entry of data as the goal of Office Automation
- To take account of developments in other Police Forces, and to encourage cooperation between Case E Police Force and these Forces as appropriate
- To establish forthwith an IT Department, and to seek authorisation from the Regional Council for an increase in IT establishment of 10 as soon as possible

As noted above, the ISS took account broadly of what had already been considered, that being the commitment to a new command and control system, and the office automation project. However, the way in which the latter was to be implemented was changed significantly in the IS/IT strategy from that originally envisaged.

In the event, 8 new staff were recruited to begin developing applications under the office automation project. The IT strategy had made a series of recommendations concerning resourcing IT support and development, and in 1992 IT resources were consolidated from the Research and Development department and the communications department into an IT unit with the former principal IT officer now designated as IT manager. Another part of the strategy had been to request funding requirements of £900,000 for the years 1991/92, 92/93, and 93/94. What had not been anticipated by the IT Manager was that this funding would be made available almost straight away in 1991, which meant that the funding had to be spent before the anticipated IT department existed. Consequently, as a senior member of staff associated with the IT developments acknowledged, they

> "hurtled £900,000 worth of technology out into the Force, without most people having any idea of what it was to be used for".

This process was said to have continued in the next year although by this time an embryonic IT department was beginning to start work. Nonetheless, apart from the command and control system which was delivered in 1992, there were no legacy systems in place and they had no long term contracts to be paid for.

The newly formed IT unit reported to a Chief Superintendent in the Research and Development department, and gradually staff within the IT unit took over more and more of the IT tasks allowing Police officers to return to other duties in Research and Development. After eighteen months, the IT unit was involved in restructuring within the Force, which saw it being amalgamated with the radio communications section and with telecommunications. This also saw a new post created, that of IT & Communications Manager, a post which was filled by the existing IT manager. This post was said to be equivalent to a Chief Superintendent, and was the first time in a Scottish Police Force that an IT post had been given such a senior status.

The development of the initial IS/IT strategy was seen as being the work of IT Officer alone, and was recognised by those staff who worked with IT at the time said to have taken account of some of the earlier work in developing the office automation project. The work was also said to have been subject to scrutiny by the executive level management group. While the Deputy Chief Constable was perceived by many of those spoken with as the champion of the concept for office automation in 1988, at the time of the IS/IT strategy development, the assistant Chief Constable overseeing management services was seen as being someone particularly interested in the potential of IT. Indeed, this person went on to take up posts as Chief Constable in two other Scottish Police Forces. Upon leaving Case E Police Force in 1994, another senior officer replaced him and he also was seen as having a keen interest in IT. Those people spoken with observed that having someone at the most senior levels acting as a champion for IT was important. As one senior officer involved in the project observed,

> "if you get one individual driving it who maybe has a wee bit more vision and clarity of thought about where we should be going in the future .... and if he can sell it to his peers or policy group or whatever, and obviously provide some evidence for, 'well what are we going to get out of this .. there are benefits to be had here' ... that can greatly affect how an organisation goes".

The common view of those spoken with was that the concept of strategy only came to be considered by Police Forces in the early 1990s following the publication of a series of Home Office circulars (e.g. Home Office, 1983, 1993) and Audit Commission papers (e.g. Audit Commission, 1990, 1993) , together with the increased attention being given to issues of strategy during inspection visits by the HMIC. In particular, there was increasing referral during visits by the HMIC to strategy for IS as representing best practice, and this concept came to appear with regularity in HMIC reports (HMIC, 1992, 1996, 1997, 1997a, 1998, 1999). The combination of these factors was said to have alerted many senior staff to the concept termed strategy, not least in the area of IS given the growing recognition of the importance of IS, and the cost .

While all those spoken to reflected upon the role of the most senior policy making group in the Force, they were not certain that the policy group had provided any input into the IS/IT strategy other than approving it. On the other hand, there was unanimity that the head of the IT and communications department, formerly the principal IT officer, had been instrumental in moving the Force forward in terms of developing and implementing IS/IT strategy.

As major developments slowed down or halted for whatever reason, staff in the IT department would work on smaller projects that they judged to be priorities at that particular time, or which fitted in with the amount of time and resources they felt were available. Hence, IT staff recognised that a lot of the smaller developments that had taken place had not been in the ISS. One example of such a development was the development of a notebook PC application that contained a dataset from the criminal records office to enable officers to check for stolen property whilst out on operational duties. This application was developed at short notice in response to a major anti-crime initiative in the Force in 1995. This also represented the first time that a member of the IT department had been invited to sit in on a steering group for a major policy initiative. Such smaller applications were developed at various times during the 1990s, although in general the ISS only reflected the larger developments, which were concerned with the office automation project.

The next major review of the IS/IT strategy occurred in 1995. Here, the head of the IT & Communications department together with the IT manager and the communications manager reviewed progress against the 1991 strategy document. They decided that overall the earlier strategy had been appropriate, and remained so, allowing for a few adjustments to timescale, resourcing, and specific technologies. The revised IS/IT strategy also took account of forthcoming developments that would impact upon IS, such as local government reorganisation, compulsory competitive tendering (CCT), and the introduction of a revised national HOLMES 2 system.

The IS/IT strategy in 1995 was said to reflect a desire on the part of the two managers responsible for IT to separate out dealing with operational issues from thinking about strategy; they considered it vital to create time to think about where they may be going with IS, and what the resource implications would be of any particular actions. At the same time however, this work was fairly restricted to the IT Departments sphere of activity, and was not able to take that much account of business strategy for the future - principally because there was no strategy.

There was a recognition by those involved with the ISS that in many ways what they had been working with was a strategy in name only, as one member of staff commented in 1996,

> "I would like to say that the strategy comes out of a strategic process, but it didn't, it didn't come out of a process of the Force sitting down and deciding its strategy, and [us] then doing an IT strategy in support of that strategy, it didn't come out that way. I think we're beginning to recognise the need for that type of thing".

However, to some extent this view was both being reinforced, and at the same time undermined by other activities. During 1997, the IT Department was the subject of five separate audits, by internal inspection teams and by the HMIC, some of which were looking at the Force as a whole, and some of which were concentrated upon IT. A factor in this was that the IT managers were being asked for more strategy documentation, and in particular the HMIC were keen to see the IS/IT strategy containing detail down to the level of full SSADM analysis and PRINCE project management data. Staff in the department reflected that the extra effort required to produce such documentation seemed to be justified by the very production of documentation, rather than through any examination of strategic processes and/or strategic thinking, or even whether the proposed strategy was appropriate or not. One analogy used by the IT Manager was that IS/IT strategy seemed to be perceived by the inspection teams as a document based outcome rather than being seen as a process of value in its own right. By mid-1998, the senior IT staff said that they were awaiting the publication of the Scottish Police ISS (SPISS), having now completed the implementation of the applications outlined in the 1991 ISS. The IT staff felt that they had a good idea what was going to be in SPISS having been closely involved in the production of it, and they felt that this would be the guide to their own strategic developments within Force. So far as the IT staff were concerned, the SPISS would be a reflection of Case E Police Force's view of ISS.

10.3.3. IMPLEMENTING OFFICE AUTOMATION AND CRIME MANAGEMENT

The Office Automation Project, and as a key part of that the Crime Management System, were seen by the IT staff, the Research and Development Department, and the senior managers in the Force as constituting the heart of the IS/IT strategy in the Force for the 1990s. The efforts of IT staff at this time was directed towards connecting the

various LANs across the Force as more and more installations took place, gradually building up a WAN throughout the Force, and through which force-wide computer applications could be delivered. The concerted effort to install personal computers in the Force meant that from 1992 onwards these were being installed at the rate of approximately 200 to 250 each year initially, a rate that increased from the mid-1990s. By mid 1998 there were 2,000 PCs in the Force.

In addition to the installation of PCs, a number of systems began to be developed for use in the Force. An early system was a crime pattern analysis system, written over a period of three months in 1992 using FoxPro software. This system was developed quickly when it was recognised that data from the new command and control system could be used in a limited fashion. Despite the fact that this set the crime management system back several months, the senior IT staff realised that if they did not develop such a system, then Police officers would have to wait several years to get one based upon the planned crime management system. This was a reflection of a desire to give the operational Police officers some IT that did something useful for them, in line with the expressed wishes of the then Chief Constable who wanted IT to help the Police officers on the streets.

In 1994, a computerised custody recording system was implemented by the IT Department staff, who had also written the application in-house. With this sort of work to be delivered, the number of staff in the department had been increased following requests to senior management by the IT Manager. By June 1995, the IT & Communications department had 85 staff, 35 of whom were dedicated to IT. All applications were being developed in-house, and there were almost 1,000 PCs distributed across the Force. The reasons for the IT & Communications Manager having originally decided to standardise on PCs had according to him been driven by pragmatic concerns; namely, that as funding was such a problem for the Force, they wanted to standardise on something that they could easily buy as and when money became available. In addition, as a standard product, maintenance and replacement were not viewed as likely problems, and it was thought that they could be outsourced, as happened from 1995 onwards. However, this development was seen to have brought its own problems, as a senior member of the IT staff noted,

> "we're now going into what I would call a more mature phase where we've built all this, and now we've got to maintain it all. .... The snag is that to go into this more highly developed stage will probably require us to come up to the level of expenditure of other forces and the other forces we're comparing with they have had IT all through the 80's, and are now building on top of that ... they're at a level of expenditure .. we ... I would guess if .. that we would be 51st out of the 51 forces in the British Isles when it comes to that".

The problem of limited finance in comparison with similarly sized Police Forces elsewhere was recognised by both Police and non-Police staff alike as a major problem for the development of IT in the Force. However, it was seen by them to be compounded by other pressures upon the Force in the mid-1990s. One of those mentioned was the need to prepare for CCT which was seen as a subject of ongoing debate between the Chief Constables and government regarding the advisability of subjecting Police use of IT to CCT. Another central government inspired issue that was considered to be of interest to the IT department in particular was local government reorganisation in Scotland together with changes in budgeting for Police Forces which would begin at the same time. The IT department staff said that they were particularly interested in the consequences of local government reorganisation as they had a large proportion of staff on secondment from the regional authority, which was due to be abolished in 1996 and replaced by new unitary authorities. This meant that while they were trying to develop new applications, they did not know who, or how many staff, they would have after reorganisation. Furthermore, they were aware that once the Chief Constable assumed complete responsibility for the Force budget, this would mean increasingly difficult choices between capital expenditure on IT versus patrol cars for example, or perhaps between new IT and extra officers on patrol. On a processual side, the IT department managers knew that they would also have to assume responsibility for IT procurement, something that they had never had to address previously. All in all, in 1995/1996, the senior staff in the IT department recognised that they faced a range of uncertainties, while it was trying to develop the applications identified in the original office automation project.

The Crime Management System was seen by all of the staff involved as the central aspect of the Office Automation Project. The aim of the Crime Management System was documented as being (Case E Police Force, 1994):

- to automate all activities associated with the recording and searching of reported crime
- to enable single data entry
- to seamlessly integrate with the custody system and the case management system

The decision by the Force executive in 1994 to adopt the Crime Management System resulted in a decision by the Research and Development Department to instigate organisational change in tandem with the implementation of the crime management system. In 1995, a pilot was commenced in what was then N Division. According to a member of the project team, the Crime Management System was making them rethink the way they worked,

> "a lot of the English forces have gone for what they call a crime information system. We are looking to put a wee bit more on top of that. It's not just a computer system, we're changing management processes throughout the division and throughout the Force, and we feel that that's an integral part of the computer system. The computer system is driving us, or allowing us the focus to make the changes to sort of reengineer the processes that go on out there, which are as important as the computer ... the computer's only the tool, its only the sort of number cruncher and the data handling part of it, the rest are the changes in procedure so that we can get the best results to maximise the use of the resources".

The pilot system in N Division consisted of 42 personal computers networked around a database server, with an e-mail link to the Procurator Fiscal incorporated. The introduction of the crime management system was said to represent a large commitment by the Force to both technology and to organisational change. While the development of the project was seen as being led from within the Research and Development Department, staff in the IT Department said that they worked closely with the project team as they were responsible for the technological development and implementation. Consequently, it was argued that when the IT department experienced something of an upheaval in 1996 as a result of local government reorganisation, this had a knock-on effect to the office automation project, and the crime management system in particular. When the regional authority was abolished in 1996 the IT department had just over fifty staff, a third of whom were on secondment from the Regional Authority. When the Authority was disbanded, some of the seconded staff opted to stay with the Force, while the Force also received several additional staff from the old Authority. By the end of

1996, most of the ex-Authority staff had left, both those who had opted to stay and those who had been transferred - including the IT manager, leaving the IT department with a shortfall of between 10 and 12 staff for the next year. The remaining staff said that they felt under great pressure as they endeavoured to manage the workload. It was felt that as a consequence, the crime management project had experienced delays of approximately 10 months to the schedule for implementation into other Divisions around the Force. It was not until the end of 1997 that the Department was able to recruit more staff, after which the staffing situation stabilised. By mid-1998 the IT Department had 68 staff, and it was expected that this would increase by several more by early 1999.

During the period 1996 to 1998, the crime management system was implemented in all Divisions across the Force area. By the time it had been installed the cost had risen above the anticipated £2 million (an exact figure was unobtainable, although it was said by the IT staff to have doubled), and the system incorporated a range of features, including: computerised recording of crime, crime pattern analysis, criminal intelligence, and case load allocation & management. However, the system was seen to have problems. As the system had been implemented on a Division by Division basis, using file-servers located in Divisions, the systems tended to be oriented towards the Division in which they were located. This meant that not only was it not possible for officers from one Division to interrogate the data of another Division through a terminal in the former's station, but that the system was particularly sensitive to any restructuring of Divisions. When in 1997 plans were introduced to restructure Divisions, both to reflect changes in local government and to flatten the command hierarchy, the newly installed Crime Management System was perceived to pose a considerable overhead in terms of additional work to update the system. Further changes in Divisional structure were still in hand at the time of writing, but the consequences of a reduction in the number of Divisions from 14 to 9 means that the staff in the IT Department perceived that they would faces a significant workload in updating the systems to take account of these changes.

By mid-1998, no further new development work was being undertaken upon applications solely for the Force, as any new work was to be related to the developing National ISS. A senior member of staff noted that while in the future the Force's IT

development would follow the national ISS, in fact the national strategy was a reflection of their own Force's approach anyway.

10.4. DISCUSSION

In seeking to understand ISS formation at Case E Police Force we have identified several issues which have emerged from our analysis of the case study. In addressing ISS there are a range of other issues which are embedded in a broad stream of organisational practice (Mintzberg, 1978; Johnson, 1997) which we must examine if we are to grasp the intricate socio-political nature of ISS formation (Waema & Walsham, 1990). In order to draw out themes which we have found to be important for our understanding, we will concentrate our discussion of the case in terms of our investigative framework discussed in Chapters Two and Three, structuring the sections in terms of web model analysis (Kling, 1987).

10.4.1. INFRASTRUCTURAL AND HISTORIC ISSUES

The initiation of thinking about IT strategy in the late 1980s had been seen as a combination of forward thinking by the senior Officers at the time, influenced by the Home Office circulars (e.g. Home Office, 1983), and the need to do something about the severe funding crisis which the Force was perceived to be facing. IT was said to have been seen as a way of improving efficiency thereby releasing Officers for patrol, and potentially as a means of gaining funds from Government by being seen to be proactive users of IT. In the event, these extra funds were not forthcoming. That said, the work done was perceived to have paved the way for the ISS of the 1990s by specifying the Office Automation project.

The limited existing technology infrastructure around the Force in 1990, meant that the new IT Officer was seen to be starting with a "clean slate" with which to work. In practice however, we can see that with the public commitment having been made to the Office Automation Project, the ISS which was developed would have had difficulty in abandoning the idea upon which the Chief Constable had staked the future of the Force,

> "... a project which should be viewed as a *starter* project in a long term programme of IT Development stretching into the 21st century" (Brett, 1988, p.6).

The commitment to what came to be seen as a high profile project by senior management was difficult for a new member of staff to ignore, given the perceptions by many other senior members of staff that this was ".. the way the Force was going with IT".

The financial situation which was recognised by all spoken with as being a constant feature in the life of Force, can also be seen as a factor in respect of ISS. The IT Officer recognised the lack of finance, and came to realise that there may be a sporadic nature to the allocation of such monies. This factor was said to be influential in the decision to standardise on PCs and LANs.

Similarly, we note that while many authors give the impression that ISS develops from an understanding of business strategy (Lederer & Salmela, 1996; Earl, 1999), we see here that while a written statement may indeed be made acknowledging aspects of the business strategy, ISS should be seen as something intimately interwoven into both the context of the time, but also into the perceptual construction, or mental construct (Jayaratna, 1994) of those concerned.

Such interwoveness is demonstrated elsewhere in the case study, when it was recognised by staff that in introducing the pilot of the Crime Management System, they were also affecting the processes by which work was done. This affected the future development and implementation of the system, and hence for ISS formation. This recognition, was a consequence of context, of time, and particularly therefore of mental construct at that time given perception of that context. This can also be seen as an example of strategy evolving (Mintzberg, 1990).

10.4.2. SOCIAL RELATIONS

In considering the impact of social relations upon the practice of ISS formation, we perceive a power configuration relative to ISS formation in line with *Meritocracy* (Mintzberg, 1983). This is discussed in Table 10.1. below.

Characteristics:	**Perceived as: *Meritocracy***	**Evidence:**
External Coalition (EC)	Passive (but increasing dominance)	A group of influencers operating through governmental remit, if not explicitly in concert; Increase in activity of HMIC, audit commission, SPISS; funding linked to initiatives (e.g. best value from ISS); external coalition seems to becoming more dominant after being passive in relation to ISS.
Internal Coalition (IC)	Professional (constrained by bureaucratic norms)	Discipline based hierarchy; Strong professional IS expertise who lead internal ISS, and influence external coalition in terms of SPISS
Apparent Power Relationship	EC <==> IC	IC dominated ISS (subject to funding approval), IC also dominating SPISS aspect of EC. Influence of HMIC, audit commission increasing dominance of EC.
Implications	Well placed to deal with complex work, especially in relation to ISS. Potential rationalisation of expertise in presence of focussed external influence should there be a shift to *Instrument*.	Strong professional expertise in IS area able to provide support for complex work. SPISS could lead to rationalisation, but scale of Force suggests this is unlikely.

Table 10.1. Power Configuration Analysis (based upon Mintzberg, 1983)

One of the findings of the analysis in Figure 10.1. is the perceived *Meritocracy* power configuration (Mintzberg, 1983). This intimates a group of professional expertise that is well placed to handle complex work, particularly in relation to technology, in this case IS. ISS formation has been led by an internal coalition based upon professional expertise, albeit within the bounds of professional standards and bureaucratic norms of the organisation. The external coalition could be described as passive, although the internal coalition were perceived to be influential in relation to SPISS, which was seen as forming part of the external coalition. While ISS formation was seen as increasingly focussing on SPISS, the size of the Force suggests that rationalisation of professional

staff is unlikely for some time. However, there are perceptions that the role of the HMIC is having an increased influence upon ISS by demanding formality in processes. While the external coalition could be seen to be becoming more dominant, the internal coalition based upon professionalism renders this passive. The implication of the analysis is that if ISS formation remains dominated by the internal coalition, it is suggested that the staff would be well placed to handle complex work (ibid.), related to IS.

We now move on to discuss themes that have arisen from the case with regard to social relations, and which have developed as a result of our analysis of ISS formation

10.4.2.1. The Importance of Roles

The role of the person brought in as IT Officer, and who subsequently took the post as IT and Communications Manager can be seen to have been influential in ISS formation. This person, through a combination of expert knowledge, interest and authority vested in the role, developed ISS, albeit following the broad thrust of the 1988 initiative. In addition however, this individual was central to maintaining progress in developing and implementing the office automation projects, in collaboration with the Research and development Department. One aspect of this role of note is that the person in his role was the only person in the Force who was associated with the projects throughout the 1990s. All the police staff either moved on to other posts or retired after at most 2 or 3 years. This lent further weight to the position of authority that this person had given that no one else in the Force had the knowledge that he did.

In tandem with this role, at Assistant Chief Constable level throughout the 1990s there was at least one officer who was regarded as enthusiastic about IT usage. This meant it was perceived by those people interviewed that at the executive level there was always at least one person who spoke with enthusiasm for IT. While we were not able to verify this directly at such meetings, nor were we able to gauge from people whether this had any effect in terms of ISS. However, most were of the view that the battles for budget were such that without a voice at the executive level, funding for IT would have been reduced even further such was the pressure upon resources in the Force.

10.4.2.2. Relations with other Agents

Again in this case study we have found that the combined presence of the Home Office, the Scottish Office, and the Audit Commission, was perceived to be important in shaping the views of senior staff regarding the concept of strategy. Continual reference was made to these bodies in discussions about strategy, and to ISS documentation in particular. Namely, that the continued reference to the need for Forces to have strategy was seen as indicating a requirement to produce a document. The role of the HMIC in conducting and reporting upon inspections was seen as another key factor regarding ISS documentation. It was reported by staff that they found the insistence of the HMIC that ISS documentation should be available extremely frustrating because they felt that so long as there was a document then the HMIC would be satisfied. So far as the senior IT staff were concerned, they felt that it was more important to think about strategy and to do something, than to merely produce a document. Nonetheless, the role of these bodies can be considered in terms of the exercise of power through the manipulation of perception (see Table 3.1). We can see the visits from the HMIC as a ritual, through which norms of best practice are encouraged, as demonstrated for example in the declarations of written ISS, and the use of project management methods as being best practice (HMIC, 1999). The establishment of such cultural norms should not be seen as a one off event (Pettigrew, 1985a), but rather a part of an ongoing process of construction and reconstruction of social practice in organisational settings (Berger & Luckman, 1967; Giddens, 1984; Reed, 1992). This applies also, if less frequently, to the Home Office, Scottish Office, and Audit Commission. The release of Papers and Circulars can also be seen as a part of the ritual of the shaping of practice, the exercise of power through the manipulation of perception.

In addition, we can also understand the actions of these groups through the exercise of power in terms of the manipulation of perception, through the use of language, in this case the use of the language of strategy in relation to ISS (Audit Commission, 1993; Home Office, 1993, 1994; HMIC, 1993, 1998, 1999). Many of those people spoken with referred to the change in the use of language that had occurred following the release of papers and circulars from the above agents.

The relation with the regional council can also be seen as a factor for ISS. As all of the staff, except for the IT manager, were employed by the regional council, when the break-up of municipal councils came in 1996, this was said to have proven to be a period of great instability for the IT department. The consequence of this was seen as stalling the development and implementation of systems by almost one year. This was said to because by a mixture of the uncertainty that people felt about their jobs, for up to one year before the change, and the effects of 18 staff leaving for jobs with the new authorities after the change.

We can also think of these agents in terms of the exercise of power through the power of the system, in that there is a sense of acceptance that these agents are part and parcel of the system, the web of relations within which the reality of organisational practice is constructed and reconstructed. The operation of these agents is out of the control of any of the people in the organisational setting, but should not be thought of as being in the hands of others either. Instead, it is the position and operation of these institutions of practice relative to one another through which a web of power relations can be considered operational.

Finally, we should note relations with SPISS. In this case, the relations with SPISS were of interest as the IT Manager was one of the people most closely involved in the development of the National ISS. After the mid-1990s it was generally accepted by the more senior IT staff that SPISS applications would replace the existing systems. Indeed, staff at Case E Police Force were developing the first SPISS application, for firearms, in 1998. They planned to implement this in the Force after which it would gradually be adopted by other Forces in Scotland. The relatively high number of IT staff compared to other Forces in Scotland meant that the staff at Case E Police Force saw themselves as most likely to be developing national applications. For staff in this Force, it was not seen as a case of stopping what they were doing to await SPISS applications; instead they perceived that what they were doing were going to be SPISS applications, and hence that their efforts were all the more valuable.

10.5. SUMMARY

In this case study, ISS formation was closely related to what was termed the Office Automation Project, a large proportion of which was successfully developed and installed. We have highlighted the increased domination by the external coalition, and we have categorised ISS formation in terms of a *Meritocracy* power configuration (Mintzberg, 1983). A particular facet of this configuration is the way in which professional experts have acted both as influencers of an internal coalition and as influencers of elements of an external coalition in the form of SPISS. That said, we have also discussed four themes which we have identified as being important in our understanding of the generative forces affecting ISS formation, and in particular the analysis has discussed the exercise of power in relation to all four conceptualisations outlined in Table 3.1.. We now move on to discuss case study F.

CHAPTER ELEVEN - ISS FORMATION: CASE STUDY F

11.1. CASE F - A NATIONAL INFORMATION SYSTEM STRATEGY

While we regard this as a case study, it is not what may typically be conceived of as an organisational setting, but does represent an area of social practice associated with the development of a National ISS for the Scottish Police Forces, which is termed the Scottish Police ISS (SPISS). People are employed to work exclusively developing SPISS, being employed by the Scottish Office, although ostensibly they are working for the Scottish Police service as a whole. The fieldwork was focused upon ISS formation for SPISS, using the period from the recruitment of a Project Manager to develop SPISS in 1995 through to the writing of the first SPISS application in 1997. This provided the focus for our period of engagement, this being a prerequisite for validity in case study research (Pettigrew, 1985a; Yin, 1989).

We interviewed the SPISS project manager several times, but in addition we spoke with people in each of the case studies already reported upon about SPISS, as some of the people in these case studies were very closely involved in practice surrounding ISS formation for SPISS. At the same time, many other people knew of SPISS and were keen to speak about it as they felt that it marked a major, and long awaited period of cooperation in the development of Police IS. However, we have limited our discussion here to those people interviewed who were closely involved in ISS formation for SPISS. We have investigated historic events associated with SPISS as it became apparent that these were important to our understanding of ISS formation.

11.2. BACKGROUND TO SPISS

National computer applications for the Police started with the Police National Computer, which had spread throughout all Forces in Britain by the mid-1970s. The next major development in national computer systems came with the development of

the Home Office Large Major Enquiry System (HOLMES) system, adopted in Forces from around 1982 onwards. A couple of points are worthy of note with regard to the HOLMES application. Firstly, the reason HOLMES was initiated was as a result of increasing frustration, in Police and Government circles, that not only could Police Forces' existing systems not share data, but that within major investigations within individual Police Forces data was not being shared to the degree one would have assumed. The second point of interest, is that Police Forces were allowed to purchase their HOLMES systems from different suppliers, whose implementations of the HOLMES design were incompatible. Thus, it was often the case that adjoining Police Forces had HOLMES systems that could not be linked because they were from different suppliers. This is exactly what happened for example following the Lockerbie air disaster in 1988, when the Strathclyde Police HOLMES system being used as the main system for the investigation was incompatible with the adjoining Force's HOLMES system at Lothian and Borders Police . This situation with the incompatibility of HOLMES systems from different suppliers was universally acknowledged by Police officers interviewed during this research as wholly inappropriate.

In Scotland, another national application was implemented in the mid-1980s in the form of the Scottish Criminal Records Office (SCRO) system, which gave all Police Forces access to a national database of criminal records. A system similar to the SCRO system was not repeated in England and Wales until 1995.

That the implementation of the HOLMES system had not been exactly what had been planned, had not gone unnoticed amongst many Police Forces and as well as in relevant Government departments. For example, in Scotland a report by a representative of the Home Office's Police Requirements Support Unit in 1988 had highlighted the desirability in the area of IS of having,

> ".. a coherent strategy .. for linking the Police Service to other agencies in the criminal justice system and for the setting of national standards." (Brett, 1988, p.5).

Similarly, at a national level in Britain there had been a number of Home Office circulars and Audit Commission reports that had pointed to the desirability and

economy of having nationally specified systems in the Police Service (Taylor & Williams, 1992; Audit Commission, 1990; Home Office, 1993.).

The impetus for co-operation between Police Forces was said to stem from Home Office Circular 114/1983, *Manpower, Effectiveness and Efficiency in the Police Service* (Home Office, 1983). This circular not only drew attention to the need for much greater co-operation between Police Forces, but also linked this need for greater co-operation quite explicitly to the receipt of budget in the future. In effect, if the Police wanted more money, then they would have to show that they were making most efficient use of what they already had.

As these pressures continued into the 1990s the implications for IS became clearer as one chief officer noted in 1995,

> "until now I think you will find that most people have viewed the provision of IS/IT services as being very much an internal driven operation and you will find that they have developed things within their own circles or by specifying a system, going out and buying it from a manufacturer and then living and running with it themselves .. in the future I think that is likely to change ..... the change is going to be driven by the fact that forces are now going on to single line budgets, and that means the government will come along with a bag of money and say, 'right there you are chief, get on with it, you can have as many cars and as many officers as you like but don't come back and ask for any more money' .. so that is obviously going to focus attention on every nook and cranny of the operation and one of these of course is the high spending departments of comms. and computer departments .. so they will undoubtedly be examined quite closely in the future"

Despite this view, all eight Police Forces in Scotland, together with the forty three in the rest of Britain, continued developing their own systems throughout the 1980s and 1990s. The reasons given to explain this situation varied, but the most common view expressed was that Chief Constables as a group were both autonomous, and individualistic, in the way that they managed their Forces. Hence, it was felt that not only was it difficult to get them to agree that what someone else did in another Force could work in theirs, but also that they had a vested interest as Chief Constables of separate Forces in being seen to be independent. However, it was said to be in the early 1990s that things began to change in Scotland with a move towards developing a National ISS.

11.3. INFORMATION SYSTEMS STRATEGY FORMATION - SPISS

In 1992, the Computer Policy sub-committee, a part of the ACPOS standing committee on communications, tasked a working party with developing an ISS for the Scottish Police Forces. This was said to have come about because of one or all of a number of reasons given by participants:

- that the committee had been thinking of doing so for some time;
- that one of the members was from Case E Police Force where an ISS had been developed;
- that a group was working on an ISS in England and Wales;
- that various Governmental and inspection bodies were suggesting that it might be a good idea;
- that senior Police officers who had a good understanding of IT were coming into ACPOS.

If there is one particular reason it is not clear, but it seems more likely that it was a combination of these various reasons that stimulated the desire to develop a national ISS

It is worth stopping at this point to refer to the work that was undertaken in England and Wales. In 1991 what was described as an ISS scoping study report had been commissioned by the Home Office, in conjunction with the Association of Chief Police Officers (ACPO), in which it was recommended in May 1992 that a full ISS study should be undertaken. In July 1993, a working party comprising Police officers, civil servants, IT consultants from Touché Ross, and a number of Force IT managers began developing a national ISS. The rationale for such a strategy study was that as information, together with people, and finance, formed the core resources of policing, it was essential to ensure "the smooth flow and effective analysis of information in support of the tasks and objectives of the Police Service" (Home Office, 1994, p.6). Furthermore, Police Forces were seen as performing the same basic functions, so that it was not considered "to make economic sense for each to develop separately its own IT systems to support these functions... ..On Grounds of economy and effectiveness there was a clear case for a National Strategy for Police Information Systems" (ibid.).

This group presented the strategy report in November 1994, and while this was seen as forming the basis for ISS related work in England and Wales for the rest of the decade no applications had been produced at the time of writing.

It was not seen as being the case that Scottish Forces were simply excluded from the process, as in fact ACPOS had a member of their Standing Committee on Communications as an observer on the Strategy Steering Committee in England and Wales. It was thought that with Scotland having a different criminal justice system than England and Wales, with different methods of funding and with a history of separate IS developments it was decided that England and Wales would produce their own ISS. This was not seen as spurring ACPOS to have their own strategy; on the contrary it was perceived that there was an interest to see what happened with the England and Wales effort with a view to adopting it in Scotland if appropriate.

In Scotland, a working party was set up after discussion at a meeting of the ACPOS computer policy sub-committee. The working party included the secretary of that committee, who was a Superintendent, and two civilian IT managers. They developed an overview ISS document which was delivered in the autumn of 1993. The main feature of this document was seen as the setting out of ten stages (shown in Appendix 6) which it was felt needed to be addressed in order to develop the ISS. These stages were written by the IT manager from Case E Police Force, in collaboration with a Police Officer from Case C Police Force. As can be seen, in this view of ISS, the stages seek to build upon the definition of common entities, relationships and data attributes from the existing systems across Scotland. It is also noticeable that the inference is (from stage 8 - see Appendix 6) that IT and IS are one and the same. We found that generally people did make a distinction between IT and IS, and indeed, the 1994 ISS document, discussed in due course, does distinguish between IS, as the systems, and IT as the technological means which the systems use.

It was decided by the computer policy sub-committee that in view of the fact that the English and Welsh strategy group were due to report in January 1994, that they would wait until the delivery of that report before proceeding further. The English and Welsh strategy was not delivered as scheduled, so in March 1994, another working party was set up, this time to proceed with an ISS study in Scotland. The working party comprised

three Police officers and two civilian IT managers, all from different Forces, and all chosen by the Computer Policy Sub-Committee.

The brief given to the working party set up in March 1994 was said to have been to develop a national ISS for the Police Service in Scotland, and they proceeded to work through the ten steps outlined in the earlier ISS report. After applying to the Scottish Office for funding, the working party received a sum of £10,000 to buy in assistance from consultants, in this case, from IBM. In May and June 1994, three two-day work shops were held at the Scottish Police College in Tulliallan, during which application requirements were discussed.

As one member of the working party noted when commenting on the outcome from the workshops,

> "at the end of the day it demonstrated that no force has systems that are radically different from any other".

The workshops involved members of the working party together with representatives from all of the Scottish Police Forces, assisted by staff from IBM. After establishing data requirements, the working party reviewed the existing and required technical infrastructure. In November 1994 EWISS was published (Home Office, 1994), and after consideration by the Working party together with the Computer Policy Sub-committee, it was decided that the technical specification in EWISS would be adopted in Scotland. The working party then went on to examine application requirements, identifying sixty one separate application areas (shown in Appendix 7). The development of these applications was seen as representing a detailed understanding of what applications Forces currently had, which was then seen as the basis for what they would get in the future. The working party decided that their application areas were not that different from those in EWISS, and any differences were explained by the differences in the criminal justice systems. A number of senior Officers wondered why Scotland did not just implement EWISS, as one said,

> "I happen to think that the documentation that has come from south of the border is very good indeed, and we should subscribe to any application effort that goes in south of the border. That's a personal view ... there are some strong political views in Scotland that says 'we're different and we're answerable to the Secretary of State for Scotland rather than through the Home Office' ..... 'if it comes through the Home Office it'll never work' and all the rest of it you know, but I happen to believe that the applications are so similar that we needn't bother whether it is developed in Scotland or not."

This view that Scotland was different and should therefore have its own set of applications based upon its own ISS persisted, and was accepted by the Computer Policy Sub-Committee.

Following this, in September 1994 an IS/IT Strategy document was published giving details of recommendations for ISS, and details of information requirements and technical architecture.

This document set out key findings (ACPOS, 1994):

- That there was recognition across the Police service of the need for a coherent and common ISS, which was perceived to offer benefits:
- consistency of data
- close links between Forces & Other Criminal Justice Agencies
- an efficient backbone network to facilitate communications
- That individual Forces have requirements specific to them which must not be overlooked

Following this the IS/IT strategy document set out 4 recommendations:

1. That the Scottish Police forces continue to develop an IS/IT strategy using outside assistance to provide the necessary experience and resources to complete the work

2. That the Scottish Police Forces appoint a central advisory and support group to assist with the common aspects of further IS/IT strategy work and individual forces in their development and migration towards the agreed strategy.

3. That the Scottish Police forces should take into account the following:
    - Common industry standards
    - Available standard police applications
    - Available force applications
    - Individual Force's current IT position
    - The England and Wales strategy

4. That the Scottish Police Forces consider the following recommendations in the next stages of the IS/IT strategy work:
    - Common procurement strategy
    - Training strategy
    - Integrated criminal justice system
    - Joint developments

After the recommendations of this publication had been agreed by the Computer Policy Sub-Committee, it was decided by the working party that the work could no longer be done on a part-time basis. The work undertaken by the members of the working party was done in addition to the members full-time jobs in their own Forces. By the start of 1995, the working group said that having established a basis for the proposed ISS, they realised that the strategy required full-time attention. With this in mind they applied to the Scottish Office for funding of £100,000 to hire staff to complete SPISS. This figure compares to £1 million given by the Home Office to fund EWIS. The funding was received for SPISS, and in April 1995 a full-time project manager was recruited to the project on a one year contract, which was subsequently renewed for a further year. The recruitment followed a national advertisement and interviews by the Chief Constable of Case A Police Force, the Deputy Chief Constable of Case B, and the IT Manager from Case E. The person appointed had experience in ISS development in the Health Service as well as several private sector organisations.

Shortly after this appointment the project manager suggested the establishment of a project structure, including a Project Board comprising the two chief officers and senior civilian IT manager who had formed the interview panel. This proposal was accepted by the Computer Policy Sub-Committee. The project manager, together with an assistant, then spent the next two years developing a detailed data model, and in seeking to

establish the business requirements for the Police Service. This required them travelling to the different Forces', speaking with the IT staff and with the Senior Police Officers to try and establish what was required. The Project manager was surprised to find that most civilian IT staff were convinced that the Chief Officers would not want to talk about business requirements, whereas in practice the project manager found that they did. He commented that most of the Chief Officers reflected that this was the first time they had ever been asked for such requirements. This he found interesting, given that in almost all of the Forces the IT staff claimed to have developed ISS without knowing the business requirements of the most senior managers.

During this period regular reports were made to the project board, and to the ACPOS computer policy sub committee. In May 1997, with the ISS yet to be completed the project manager was given a five year contract, and early in 1998 £2.5 million was made available by the Scottish Office to support the ongoing development of the ISS. By August 1998 the ISS report was nearing completion, with a few interviews still to be conducted with various senior staff to clarify certain areas.

With SPISS, they decided that rather than adopt the common-database model of EWISS, they would adopt a corporate database approach. This was said to mean that all applications were to be based upon a single, corporate, database model, and hence would be able to exchange data both between and within applications classes. During 1997 the project staff said that they had begun to consider adopting an object oriented approach, and it was decided by them in 1998 to develop applications using Java. This followed a decision by the project staff, together with representatives from IT departments in each Force to use DB2 as the database for all of the Scottish Forces.

After these decisions, it was estimated by the project staff that the first applications would be available in January 1999, although they considered that it would be another ten years before all of the proposed applications were developed. The exact model for development of applications had not been decided, although it was intended that the Police Forces would maintain ownership of any software produced.

By mid-1998, the SPISS team had grown to five members of staff, with a few more staff to be appointed. This was seen by senior Police Officers as forming a centralised

national IT capability, and while some thought this was needed, some others thought it worrying in that it could be seen to be a step towards a national Police Force. Several senior Officers said that in their view SPISS would go some way to addressing the current problems with individual Force's ISS, which did not in their view reflect business strategy. As one officer put it,

> "There's a problem nationally where policy for forces is being presented which is actually the work of Inspectors and Sergeants, and not the senior policy team. This is because the of the senior officers lack of knowledge about IT, .. so they pass on any request about IT down to those who deal with it .. invariably Inspectors or Sergeants, and then present the result as the force policy. The problem here then is how does that IT policy fit with the organisation strategy .. indeed can those who put the policy together have a strategic perspective, and indeed can they be expected to? This is a considerable problem."

Having a Nationally co-ordinated ISS was seen by them as one way of moving towards ensuring both better systems, but also systems that was aligned to what they felt was the Police services core activities. Up until this point they thought that this just had not happened. The reasons for this they said were a combination of having:

- Police Officers actually developing ISS
- Senior Officers and some IT staff not really understanding what strategy was
- Some Senior Officers wanting to be seen to be different
- Poor communication channels between IT staff and Chief Officers

They were very optimistic that SPISS would go some way to addressing these problems, by eventually removing ISS from the control of individual Forces.

11.4. DISCUSSION

In seeking to understand ISS formation for SPISS we have identified several issues which have emerged from our analysis of the case study. In addressing ISS there are a range of other issues which are embedded in a broad stream of organisational practice (Mintzberg, 1978; Johnson, 1997) which we must examine if we are to grasp the intricate socio-political nature of ISS formation (Waema & Walsham, 1990). In order to draw out themes which we have found to be important for our understanding, we will concentrate our discussion of the case in terms of our investigative framework discussed

in Chapters Two and Three, structuring this section in terms of web model analysis (Kling, 1987).

11.4.1. INFRASTRUCTURAL & HISTORIC ISSUES

In this case study, a discussion of technological infrastructure refers to the infrastructure of the 8 Police Forces, as that is the technical base for SPISS. At the same time, acknowledging that leads us to consider the location of SPISS. SPISS was developed, was documented, gave rise to applications which are in the process of being implemented - however, it is relevant to consider where SPISS was located, because this leads us to consider the location of the concept of strategy itself. In each of the Police Forces that we have researched staff have claimed to be engaged in ISS. With SPISS, several staff within those Forces said they were involved, but made it apparent that when referring to SPISS they were referring to some process that took place away from their own Force - SPISS certainly did not reside in their own Force. On the other hand, while the SPISS project manager was based in an office at the Scottish Police College, he traveled to the Forces regularly as part of the development of ISS. Where therefore should we consider SPISS to be located, or is this even an issue? We argue that this is an issue, as SPISS was considered to have important ramifications for the Police Service as we will discuss in a moment. When we think about SPISS, and where we may find it, we would argue that the concept of SPISS was located with the people involved; for any of the people involved, SPISS can be considered to be a facet of their own mental constructs (Jayaratna, 1994).

By this concept of mental construct we are referring to the

> "characteristics [that] influence our own sense-making and decision making activities", which ".. interact in a dynamic way to form the 'mental construct' to help us make sense of the situations, to manage our relationships with others, to take action and to identify and to solve problems" (Jayaratna, 1994, p.70).

In our view it is our mental construct that helps us to make sense of what we experience and to modify our behaviour in terms of the interpretations that we make (March & Olsen, 1976). However, in our view the way in which people make sense of what they experience is problematic because,

> "the information about the environment is ambivalent, and therefore subject to multiple interpretations. Selecting an appropriate interpretation is hard because each person sees different parts of the environment as interesting, depending upon the individual's values, history, and experience" (Choo, 1998, p.67)

Therefore, we consider that what people experience, what they interpret as a result of their respective mental construct's, will vary. When the SPISS working party gather to discuss SPISS, the view of each will differ in some respects as a consequence of their differing mental constructs and hence the differences that will result from their processes of sense making. SPISS therefore in our view can be seen as being located in the amalgam of these collective sense making processes; when we think of SPISS we can think of it being located in the history of social practice surrounding the actions of those involved, but more specifically we argue that we can consider SPISS as a reflection of the interaction of sense making processes of those involved. If SPISS can be considered to be anything, in our view it is the embodiment of these interactions. We as the researcher, are also therefore a party to that interaction when we seek to investigate the phenomena.

We also see in this case study an interconnectedness between factors, which are in themselves constitutive of the experience which individuals endeavour to interpret. The factors which we consider to be important in this case study are:

- The paradox perceived by many of those spoken with that while a national strategy was being developed each of the Forces researched was also developing their own ISS.
- This was seen as being linked to the independence of Forces, who had historically operated as entirely independent institutions. Hence, the Forces were perceived to be just carrying on as normal in developing their own ISS, acting in accordance with the systems of values, norms, and beliefs that can be seen as constituting an exercise of power in terms of the power of the system (Table 3.1). At the same time it was acknowledged that pressure was growing from governmental bodies for a more cooperative approach. This can be seen in terms of the exercise of power through the manipulation of perception (Table 3.1)
- This was seen as being linked to pressures coming from the Home Office (e.g. 1983, 1993), the Audit Commission (e.g. 1990, 1993), and the HMIC (e.g. 1992,

1999). The three Es of effectiveness, efficiency, and economy (Taylor & Williams, 1992) were factors referred to by many senior Officers in relation to reasons why they considered ISS to be important. We can think of these factors as evidence of the exercise of power; both in terms of the manipulation of perception (Table 3.1), but also in altering the values and cultural norms surrounding Policing, namely, in terms of the power of the system (Table 3.1)

- This was seen as being linked to an increasing awareness by Chief Officers of the need to be more business like in the management of their Forces (Loveday, 1993), which was seen as a consequence of education processes through the senior command courses that all such Officers attended, the changes in budgeting for Forces, and the employment of Chief Officers on what were normally 5 year contracts. Yet again, we can think of this as the exercise of power in terms of the manipulation of perception of these Officers, but also in terms of the power of resources using the authority of government to employ Chief Officers on 5 year contracts - one way for the employers to endeavour to affect the independence of these Officers (Reiner, 1994).
- This was seen as being linked to the need to be seen to cooperate with other Forces in order to seek economies of scale, but at the same time Chief Officers were it was felt required to be seen to be "making an impression" in their own Force, and providing clear direction - something that most senior Officers viewed as being driven by the process of inspection by the HMIC, who was seen as "being obsessed with strategy ... thanks to people like the HMIC the Police Service has got strategyitis". Again, we would argue that this can be considered in terms of the exercise of power in terms of the power of the system, in affecting the cultural norms and beliefs. Also we can consider this as the exercise of power through the manipulation of perception by the HMIC in increasingly asking to see a strategy (HMIC, 1993, 1994, 1996, 1998, 1999).

Each of the above has been found by us to be an issue arising from the views of those interviewed, and in our view, these factors are evidence of the interconnectedness of so many issues associated with ISS formation.

11.4.2. SOCIAL RELATIONS

A discussion of this case study in terms of power configurations highlights part of the difficulty with trying to isolate internal and external coalitions (Mintzberg, 1983). SPISS, which we can regard as an organisational setting of social practice, presents some difficulty in determining whether it is internal to the Police Forces give that several of their staff work on SPISS at various times, or external to them. We regard SPISS as external to the Police Forces discussed in the preceding case studies for the following reasons: People are employed to work solely on SPISS; SPISS is funded as a distinct project; SPISS is regarded by all those spoken with as external to the case study Police Forces.

In considering the impact of social relations upon the practice of ISS formation, we can perceive a power configuration relative to ISS formation in line with *Meritocracy* (Mintzberg, 1983), which is set out in Table 11.1. below.

Characteristics:	**Perceived as *Meritocracy*:**	**Evidence:**
External Coalition (EC)	Passive	External coalition comprising Police Forces co-operate with SPISS, with a small group of Chief Officers on Project Board. While Scottish Office provide funding, influence is limited beyond desire to integrate with SCJIS.
Internal Coalition (IC)	Professional	Professional expertise employed to work on SPISS are influencers.
Apparent Power Relationship	EC <==> IC	IC dominated ISS, although approval required from Forces who to varying extents are influencers of SPISS. Scottish Office provide funding based upon progress.
Implications	Accommodates needs for complex skills and knowledge.	SPISS influenced by professional experts; SPISS seen as a project, but the end of SPISS is not predetermined. Need for complex skills & knowledge may remain or increase.

Table 11.1. Power Configuration Analysis (based upon Mintzberg, 1983)

As reflected in Table 11.1, we perceive in this case study a *Meritocracy* power configuration (Mintzberg, 1983). The internal coalition of professional experts would seem to operate in a balanced power relationship with external influencers. The external coalition could be seen to be passive, although this does not mean that they do not express considerable interest in the outcome. The implication of the analysis is that SPISS is well served for complex work (ibid.), although what happens with SPISS in the future, after the development of the applications currently envisaged, was often a matter of speculation amongst those spoken with. Some of those spoken with suggested that the SPISS project may evolve into a centrally coordinated ISS group for the Scottish Police service. If so, a *Meritocracy* configuration would appear to offer a strong professional basis.

We now move on to discuss themes that have arisen from the case with regard to social relations, and which have developed as a result of our analysis of ISS formation

11.4.2.1. The Importance of Roles

In this Case the changing nature of Roles has been found to be of importance. The ACPOS Computer Policy Sub-committee had been formed in 1987. While the three senior Police Officers said that they had been thinking about ISS from the late 1980s, as a means of "getting out of the mess police systems were in", it was not until 1992 that the concept was officially addressed. This coincided with closer liaison between this committee and the computer managers forum, comprising civilian IT managers, which had just started. While the Chief Constable of Case A Police Force, and the Deputy Chief Constable of Case B were seen as people driving the desire for SPISS, it was the IT manager of Case E together with a Police Officer from Case C who initially undertook the development work in the formation of SPISS. We see here a combination of interest in IT by all parties, perceived knowledgability about IT on the part of all parties, and authority at Chief Officer level for two of the people. The presence of the IT manager from Case E Police Force was seen as adding expert knowledge to the process.

After the decision to recruit a project manager, the two Chief Officers were perceived to have used their authority to gain the necessary resources. Meanwhile, the expertise of the IT manager and the new project manager were seen as central to ISS formation for SPISS. Through the project, the combination of people in roles most closely associated with SPISS, who were perceived as interested in IT, knowledgeable about IT, particularly the senior Police Officers, and expertise has been found to be important in ISS formation. In the views of those interviewed, it was this combination in a small team that saw SPISS develop from idea to applications.

11.4.2.2. Relations with other Agents

We have already implicitly discussed many elements of relations in Section 11.4.1. above. However, it is important to state that we have found that it was not the mere presence of such relations that was important, but rather we have found that we can think of these relations as an ongoing interaction between the agents. The notion of relations between agents is important, but it is the interaction, the dynamism in such relations that we must remain sensitive to. For example, the relationship with the HMIC was not seen as a one way event. While the HMIC encouraged best practice (1993, 1998, 1999), the incidence of best practice discussed came from practice found in Forces. Similarly, the relation between Forces, those involved in SPISS, and the Scottish Office was not seen as a one way or static relation. On the contrary, officials from the Scottish Office attended several of the meetings of the SPISS working groups with the stated intention of feeding the developments into other areas of the criminal justice system. Such interaction over time can be seen as a part of the ongoing construction of reality regarding ISS (Berger & Luckman, 1967), that is, a continual process of construction and reconstruction. Thus, relations we have found to be important (see sec. 6.6.3.1), but we have found that it is the dynamism of relations that is central to our understanding of what happened with SPISS.

11.4.2.3. Perceptions and Meanings

In terms of SPISS, perception was seen as all important by those interviewed, with the level of cooperation given by Chief Officers being seen as linked to the way in which they perceived SPISS.

In the views of the majority of Police Officers spoken with, SPISS was perceived as being concerned with achieving value for money from IS through common development of systems. In addition, SPISS was perceived as having a potential impact upon crime fighting by allowing communication between the systems of different Forces. They felt that such views were crucial for SPISS to be accepted by senior Officers. We have referred above (Sec 11.4.1.) to the inter-connectedness of factors, and amongst these we noted the pressures that Chief Officers in particular were seen to be under regarding the three Es (Taylor & Williams, 1992), which was seen as leading them towards cooperation in ISS. At the same time we noted the need for Chief Officers to be seen to be giving direction to *their* Force, which was seen to lead them towards a need to be independent. In the midst of such pressures, the way in which such systems were perceived was seen as being important to the degree of cooperation given. For some senior Officers, SPISS was perceived as an attempt at centralisation, influenced by the Scottish Office, and as potentially representing one step on the road towards a national police force. Indeed, the comment by one of the senior people working on SPISS was that the aim of SPISS was "to take IS out of the political equation for good", the perception being that different IS across Forces was a barrier to further amalgamation of Forces.

SPISS was according to many senior Officers seen as symbolising a move towards the efficient and effective use of IS, after years of what they saw as misuse. This misuse was based in their view upon the use of limited resources within Forces to replicate what had been, or was being done with IS in another Force. The symbolism attached to such phenomena as ISS constitutes a part of the way in which we attribute meaning (Morgan, 1986) to what we experience, the way in which people attribute such meaning being a part of the perceptual process (Jayaratna, 1994) within their mental construct.

The acceptance or otherwise of SPISS was seen as resting upon the perceptions accorded to it, and the perceptual process can be seen as an important component of a person's mental construct (Jayaratna, 1994), a part of the way in which they make sense of what they experience (Choo, 1998), and from which they may determine their response. Perceptions, and symbolism, we found to be an intrinsic part of how people made sense of SPISS.

11.5. SUMMARY

In this case study, ISS formation was perceived to be closely related to the SPISS project, which was judged to have progressed successfully through to development of applications. We have categorised ISS formation in terms of a *Meritocracy* power configuration (Mintzberg, 1983). That said, we have also discussed four themes which we have identified as being important in our understanding of the generative forces affecting ISS formation, and in particular the analysis has discussed the exercise of power in relation to all four conceptualisations outlined in Table 3.1..

In Chapters Six to Eleven we have presented our case studies, in which we have outlined ISS formation in five Scottish Police Forces over several years, and ISS formation for SPISS. The discussion had centred upon outlining what happened in each Force, followed by a discussion of each case study where we have abstracted the key issues. One of the issues that has arisen in considering the Forces, is the change in apparent power configurations, and in particular the differences. We illustrate this in Figure 11.2. below.

Case Study	Power Configuration (including any perceived shift) during ISS formation
Case A	From *Autocracy* to *Instrument* (fig.6.4.)
Case B	From *Autocracy* to *Instrument* (fig.7.2.)
Case C	From *Closed System* to *Meritocracy* (fig. 8.3.)
Case D	From *Political Arena* to *Instrument* (fig. 9.3.)
Case E	*Meritocracy* (fig. 10.1.)
Case F	*Meritocracy* (fig. 11.1.)

Table 11.2. Power Configurations in ISS Formation - 6 Case Studies

The implications of Figure 11.2. are discussed further in the next chapter, although at this stage we draw attention to the differences which are apparent across ISS formation practices which on the surface may appear very similar. This highlights to us the possibility that we must be wary in making assumptions about ISS formation without investigating the nature of the practice in depth.

Also in our analysis, we found that certain groupings of issues emerged from the data (Glaser & Strauss, 1967; Silverman, 1993), and that a number of different power configurations were suggested. We have used these thematic groupings to form sub-headings for the discussion of issues, which are:

- Infrastructural and Historic Issues
- The Importance of Roles
- Structures and Processes in relation to Decision Making
- Perception and Meaning
- Relations with other Agents

We now take the issues which we have abstracted from these case studies, and incorporate them in a synthesis of the findings from this research in the next Chapter.

CHAPTER TWELVE - SYNTHESIS

12.1. INTRODUCTION

The purpose of this thesis is to make a contribution to knowledge regarding ISS formation, and this chapter synthesises our analysis as a basis for the contribution. In the previous chapter we discussed the case studies organisations, and from our analysis we abstracted a series of issues which were grouped under the following headings:

- Infrastructural and Historic Issues
- The Importance of Roles
- Structures and Processes in relation to Decision Making
- Perception and Meaning
- Relations with other Agents

From our discussion of these issues we have abstracted five themes as the basis for a model. The discussion of the model, together with the implications for our view of ISS formation, forms the basis of our contribution to knowledge in the form of an analytic proposition to theory (Yin, 1989; Walsham, 1995; Cavaye, 1996).

The structure of the chapter is as follows:

1. Firstly, we discuss the themes which we identify in Chapters Six to Eleven, in which the dynamic mental construct (Jayaratna, 1994) is a central concept.
2. Secondly, we discuss our model, where we argue that ISS formation can be viewed in terms of a process of social construction and reconstruction based upon the mental constructs of those involved.
3. Finally, we evaluate the implications of this view in the light of existing theory on ISS formation.

12.2. FIVE THEMES ARISING FROM OUR CROSS-CASE COMPARATIVE ANALYSIS

Having undertaken fieldwork in the Police Service, we are aware of the potential sectoral distinctiveness in relation to our findings. However, as we have argued, we have not sought to develop generalisations to a wider population of organisational settings, but instead have focussed upon developing analytic propositions to a wider body of theory (Burawoy, 1985; Yin, 1989; Miles & Huberman, 1994; Walsham, 1995). We argue that our findings have implications for our understanding of theory on ISS formation more widely. An analysis of the issues discussed in relation to the case studies has led us to the identification of five themes which in our view are significant for our understanding of ISS formation. These themes are:

1. The *multifaceted nature of IT*: as artefact; as terminology; as subjective phenomenon
2. *Shared relevance structures* as a key aspect in delineating roles in ISS formation
3. The *interaction between informality & formality* in decision making processes
4. The *dynamic nature of relations* in ISS formation practice
5. *mental constructs* as guiding the practice of ISS formation

We will now discuss each of these, before moving on to discuss the implications for our view of ISS formation practice.

12.2.1. THE MULTIFACETED NATURE OF IT: AS ARTEFACT; AS TERMINOLOGY; AS SUBJECTIVE PHENOMENON

Perhaps unsurprisingly given our discussion in Chapter Two, we have found that in ISS formation the concept of IT is important; however, our findings indicate that acknowledging the multifaceted nature of the concept of IT is important for ISS formation. In this theme we argue that the effect the concept of IT has on ISS formation can be thought of in the following terms: of IT as constituting artefacts; as being used as terminology; and as being seen as a subjective phenomenon.

We find that it is important to consider the way in which people think about IT as an artefact when developing ISS. For example we found examples of ISS being developed in expectation of the expiry of a lease for a mainframe system, and being developed in what was said to be a response to problems acquiring data from another mainframe system. In such circumstances we find that perceptions concerning the nature of IT as artefacts is viewed as an influential factor. However, in many contributions to ISS formation literature, IT is often viewed solely in terms of artefacts (e.g. Earl, 1989; Andreu et al, 1994; Ward & Griffiths, 1996). These authors view IT solely in terms of technology which is used to implement ISS, which from what we have found is only part of the picture.

As Latour (1995) argues, IT can be thought of as more than just artefact, as we can also think of IT as social actant (ibid.) whereby the concept of IT can be viewed as influential in the construction of meaning, that is, the sense-making processes (Choo, 1998) of those involved in ISS formation. We have demonstrated this in relation to the way in which people use the terminology of IT as a means of enhancing their own career possibilities, and the way in which people are perceived as knowledgeable about IT through their use of such terminology. The use of such terminology as a part of discourse (Foucault, 1980) surrounding ISS (Bloomfield & Coombs, 1992; Knights & Murray, 1994) can be considered as a further way in which meaning in relation to ISS formation is constructed. The use of IT as terminology to give the impression of expertise (Brown, 1998) can be viewed in terms of a relational exercise of power through the management of resources (Hardy, 1994), where the actions of people in using IT terminology may be perceived as expertise and influence the perceptions, and possibly the actions of others.

Finally, another way of thinking about the concept of IT which we have found to be important is that of IT as a subjective phenomenon. By this we are referring to the way in which IT can be perceived as subjective phenomenon, even some time after the IT artefact has been removed from the situation of interest. For example, when IT is perceived in terms of shared instances of disasters, or as indications of a Force lagging behind others or being a leader, illustrate the symbolic role that IT can have in organisational settings (Hirschheim & Newman, 1991; Scarborough, 1998). Such

symbolic aspects of IT can be considered in a subjective sense as one of the means through which people construct meaning (Morgan, 1986) about ISS.

Thus we argue that IT, while often thought about in IS related literature as technological entities (Kling, 1987), can instead be considered in terms of a multifaceted phenomenon which influences the way in which people construct their understanding of ISS, and hence informs the way they engage in associated practice.

12.2.2. SHARED RELEVANCE STRUCTURES AS A MEANS OF UNDERSTANDING ROLES IN ISS FORMATION

Understanding the nature of roles in organisations that people have is important in relation to ISS formation. We argue that we can think more broadly about roles than is suggested by the job titles given to people. In doing this we have a means of better understanding perceived levels of involvement and perceived levels of influence of the people involved in ISS formation practice. This theme argues that we can think about roles in ISS formation in terms of the levels of authority, interest, and knowledge that people are perceived to have. In addition, the concept of relevance structures (Berger & Luckmann, 1967) is pertinent as a way of understanding some of the interaction between people in ISS formation practice. However we choose to understand roles, our findings show that the exercise of power (e.g. Sec. 6.4.2.1; 7.4.2.1; 8.4.2.1; 9.4.2.1; 10.4.2.1. 11.4.2.1), particularly when viewed in terms of either of the first three dimensions illustrated in Table 3.1., is a factor in our understanding of roles and authority.

A role can be thought of as more than just a particular task oriented activity, or a relative position in an organisational hierarchy, either of which may be considered to carry with them expectations which are defined occupationally or even legally (Handy, 1985). That is not to say that this way of thinking about role is invalid; on the contrary, as we found in our case studies, roles were both occupationally and legally defined for all Police Officers. It is necessary to address the apparent roles that people perceive others to have relative to themselves, and in our findings people often do this in terms of relative hierarchical status. For example, given the discipline based nature of Police organisations such perceptions of authority are seen as important. There is no denying that in a rank

structure such as the Police, a higher rank is viewed as having greater authority than one below it, although such a view is narrow as it ignores the cultural and political reality of organisational settings, where for example some people in senior roles may be ignored for political reasons (Pettigrew & McNulty, 1995). Hence, in considering the nature of the roles that people have in ISS formation practice, the forces which influence those roles and the way roles interact, our findings have indicated that we need to look beyond roles based on apparent job title or position in a hierarchy.

Therefore, while Goldsmith (1991) argues that the role of senior management is important in ISS, and while Auer and Reponen (1997) concentrate their attention on the roles of IS professionals and of management in ISS formation, neither set of authors explores the notion of role beyond the taken for granted expectations associated with the titles used. We find these views limited, as a means of expressing the differing ways in which we have found that people perceive of roles in relation to ISS formation.

From our research we can usefully think of Roles in relation to ISS formation in terms of authority, interest, and knowledge. We find that these factors are valuable in helping us to understand the roles that individuals are seen as having, the way in which they are viewed as able to influence ISS formation, and they way in which they work in combination.

The first of the factors is that of authority. Here we find that levels of perceived authority depend upon a person's position relative to a hierarchy as one way in which people consider roles, but also that any authority a person is perceived to have can also be considered in relation to perceptions of their ability to influence the ongoing practice of ISS formation. These perceptions of authority can be linked to a person's apparent access to decision making processes, formal or otherwise (e.g. Sec. 6.4.2.1., 7.4.2.1.).

Another factor in understanding roles in ISS formation practice is that of perceived level of interest in ISS. Here we refer to the level of interest in ISS, or in IT, that a person is perceived to have. Some people are viewed as being interested in IT, and are brought in to an influential ISS role (e.g. Sec.9.4.2.1.), while others may be excluded because of a perceived lack of interest in ISS (e.g. Sec.8.4.2.2.). Similarly, in terms of knowledge, we are referring to the level of knowledge of IS/IT that a person is perceived to have. Thus,

people may have a role in ISS formation practices because of perceptions of their knowledge (e.g. Sec.6.4.2.1., 7.4.2.1., 8.4.2.1, 10.4.2.1., 11.4.2.1.). We note a link between perceptions of levels of knowledge and perceptions of levels of authority, in that someone perceived to have a high level of knowledge of ISS could consequently be accorded a higher level of authority - being seen as someone who could influence ISS formation. However, we find that the distinction between perceived levels of knowledge and perceived levels of authority is made by those involved and is required.

When we consider knowledge, we see interaction between the roles that people have in ISS formation in terms of relevance structures (Berger & Luckmann, 1967). Here we are referring to the way in which "knowledge of everyday life is structured in terms of relevances. Some of these are determined by immediate pragmatic interests .., others by [the] general situation" (Berger & Luckmann, 1967, *p.*59). For example, for those who wish to be seen as specialists in the area of ISS, then what is viewed as of relevance to that person will be structured differently from what another person needs to know to operate in a different area of organisational practice (Schamber, 1994). In other words, we could assume that people who engage in ISS formation practice, "will need to know whatever is deemed necessary for the fulfillment of a particular task" (Berger & Luckmann, 1967, *p.*95). We find that it is at the intersection of these relevance structures, the point at which people have meaningful things to say to one another (ibid.) about ISS, that can influence the way people engage with others in ISS formation practice.

However, we see this as being only partially useful in understanding roles. This is because people may be in roles involved in ISS formation practice as a result of their perceived level of authority, or through interest, but not have any knowledge in the areas of ISS (e.g. 9.4.2.1., 8.4.2.1.). Nonetheless, relevance structures are considered useful in helping us understand aspects of interaction in ISS formation. Thus, likely perceptions of relevance structures of *the self* vis-a-vis others, perceptions of interest, and perceptions of authority may be considered influential in determining the roles that people seek, or accept, in ISS formation practice.

12.2.3. THE INTERACTION BETWEEN INFORMALITY & FORMALITY IN DECISION MAKING PROCESSES

In this theme we argue that the influence of decision making processes in ISS formation practice can be thought of in terms of perceived political interaction between two levels - formality and informality. With decision making processes, that is "all those steps taken from the time a stimulus for an action is perceived until the time the commitment to the action is made" (Mintzberg, 1979), we find that while both informal and formal processes are evident in relation to ISS formation, it is not in our view a case of either formality or informality being dominant. Instead we argue for a view of decision making in ISS formation practice which operates in terms of an ongoing interaction between practices of formality and informality.

Aspects of formality and informality have been widely recognised in decision making processes (Simon, 1957, March, 1989). The importance of political behaviour in ISS decision-making has been illustrated by researchers (Davies, 1991; Walsham, 1993; Jones, 1995; Sillince & Mouakket, 1997), and our findings support this view. For example, we note people being excluded or ignored from both formal and informal decision processes, or outcomes being decided informally before formal decision making processes occur. This conforms with what Gouldner (1954) terms mock bureaucracy; namely, the informality of the reporting structures and decision making processes that for the most part lie behind the facade of formal bureaucratic structures. Thus, while formal meeting processes may be in place, decisions are often made by smaller groups away from such formal meetings. Such practices can be understood in terms of the exercise of power through the management of process where decision agendas, and participation are managed (for example: Sec. 6.4.2.2.; 7.4.2.2.; 8.4.2.3.; 9.4.2.3.).

In addition however, we find that it is not just that there are informal processes in operation as well as formal processes, but that apparently informal processes can be viewed as representing the exercise of power through the management of processes (Clegg, 1989; Hardy, 1994, 1996). Here the interaction between both formal and informal processes was influenced by some of those forming an internal coalition (Mintzberg, 1983). The point of this resides in the apparent purpose of both forms of decision making, and here we find our analysis of the exercise of power to be valuable. In

our view it is the way in which the processes are perceived to be used that is important to our understanding. By this we mean the way in which some people appear to seek to influence ISS formation by managing informal decision making processes for ISS decisions, while at the same time managing a formal process of decision making with a view to providing legitimacy for their actions. This managing of formal processes can act as a symbolic means of giving the impression that there are formal procedures for ISS, this being seen as an exercise of power in relation to both colleagues and external coalition members (e.g. Sec. 6.4.2.4.; 7.4.2.4., 11.4.2.2.). This can be conceived in terms of the exercise of power through the manipulation of perception (Morgan, 1986), that is, there is an attempt to influence how those forming an external coalition perceive what is happening with ISS. Therefore, the *interaction* to which we refer can be considered in terms of the perceived dualistic nature of, and apparent purpose for, decision making processes in relation to ISS formation.

12.2.4. THE DYNAMIC NATURE OF RELATIONS BETWEEN COALITIONS IN ISS FORMATION PRACTICE

In this theme we argue that the effect of relations between coalitions (Mintzberg, 1983) in ISS formation can be thought of in terms of a process of dynamism based upon actions, and what people take to be significant from those actions through their perceptual processes (Jayaratna, 1994). The concept of relations between coalitions does imply a degree of intention in our view, that is, where the people concerned have some intentional association with ISS formation. With this theme we refer to our finding that the interaction between internal and external coalitions (Mintzberg, 1983) can be thought of in terms of an ongoing dynamic process of interaction. This dynamic process of interaction is concerned with the relational exercise of power, particularly when we consider power in terms of the manipulation of perception and as a web of power relations (See Table 3.1.).

Understanding action alone is insufficient to understand relations, as we must also consider how people actually perceived such actions in relation to ISS. Instead we argue that to understand the dynamic of relations between coalitions, actions must be considered in terms of the way in which they are perceived by others, and in terms of the

web of power relations in which they are embedded (Knights & Murray, 1994). We contend that our understanding of the effects that the perceptions of these actions has in terms of ISS formation is important. For example, we find that while some agents engage in actions such as holding meetings, writing documents, and undertaking monitoring inspections, these actions are not in our view simply a one way process of intervention so far as ISS formation is concerned. The action must also be seen in terms of the sense that people make of those actions (Weick, 1995) before they take a course of action, and it is this process of *action -/- sense-making -/- action* that forms the essence of the dynamic to which we refer.

Sense-making involves individuals in processes of enactment (ibid., *p.*30) for example where they give meaning to events in their own mind. In addition, sense-making can be seen as an ongoing social process that is focussed upon cues which surround people and from which "they develop a larger sense of what may be occurring" (ibid., p.50). Thus, the way in which people make sense of the actions arising from relations between coalitions can vary considerably from person to person, a variance that can be viewed as a key problem in sense-making in organisational settings, where shared meanings are considered important for collective action (Choo, 1998). Considering power in terms of a web of relations is therefore useful in such analysis, because of the way in which such analysis draws our attention to the "historically constituted configurations of practices" (Knights & Vurdubakis, 1994, p.172). In this sense, we can reflect upon the historic as well as current relations between coalitions, relative to a wider sphere of influence - or web of relations - where communicative, political, economic, cultural and social relationships are "simultaneously conditions for, and outcomes of, power" (Introna, 1997, p.128). These aspects form part of a web of power relations within which the coalitions and the way they interact are embedded, and which always affect and are always affected by such interactions (Foucault, 1980; Introna, 1997).

Equally, we observe that the dynamic of relations between coalitions is an area in which the exercise of power understood in terms of the manipulation of perception was of interest (e.g.: Sec. 6.4.2.3; 7.4.2.3; 9.4.2.4; 11.4.2.3). Here the impact upon symbols, rituals, values and cultural norms (Pettigrew, 1985a) can be seen as a part of an ongoing process of construction and reconstruction of meaning (Berger & Luckman, 1967; Reed, 1992) regarding the social practice of ISS formation.

In addition, the actions of some coalition members can be viewed as an exercise of power in terms of the manipulation of perception in ISS formation, through the use of language (Bloomfield & Coombs, 1992; Knights & Murray, 1994; Brown, 1992), in this case the use of the language of ISS (e.g.: Audit Commission, 1993; Home Office, 1993, 1994; HMIC, 1993, 1998, 1999). For example, perceived changes in the use of language and concepts relating to ISS in the release of papers and circulars from coalition members could be seen as influencing language use and practice, symbolising an implicit instruction to adapt.

Thus, we see discussions held and documents issued which are perceived to affect the way people make sense of the expectations regarding the concept of ISS. In addition, the action people take in calling meetings and in talking about IT is perceived to affect the way people make sense of the control being exercised over ISS. It is interesting in view of our earlier discussion regarding the use of IT terminology (Sec. 12.2.1.) to note that Weick (1995) considers the use of language in conversation to be of particular importance in the dynamic process of sense-making, a point reinforced elsewhere regarding ISS formation (Walsham, 1993). We would add to this the importance that we find to be attached to the perceptions of use of language in written communication also an intrinsic part of discourse (Foucault, 1980) related to relations between coalitions in ISS formation.

12.2.5. MENTAL CONSTRUCTS AS GUIDING THE PRACTICE OF ISS FORMATION

In this final theme we argue that mental constructs (Jayaratna, 1994) can be thought of in terms of a conceptual means of representing the differing characteristics which individuals bring to bear on ISS formation. This means that the people involved have differing values/ethics, motives and prejudices, reasoning ability, experiences, skills and knowledge sets, structuring process, roles, models and frameworks for action (Jayaratna, 194, p.64). Thus, people express differing motives, can be seen to have differing relevance structures, and are perceived to differ in terms of level of interest, expertise and authority. In addition, we note that people have different experiences, are perceived

to differ in the values that they have, and we can surmise will have differing views as a result of their individual sense-making processes (Weick, 1995; Choo, 1998). We can therefore infer that they will all differ in their mental constructs.

We define the concept of mental construct in terms of the characteristics that help to shape the process of "select[ing] some elements of the action world as relevant, significant and useful while dismissing others" as being of less use, less significant, and less useful (Jayaratna, 1994, p.64). Peoples mental constructs will develop and alter over time as they engage in a dialectical process of externalisation, objectivation, and internalisation (Berger & Luckmann, 1967) in constructing their view of social reality. We note that, "the identified elements interact in a dynamic way to form the mental construct to help us make sense of the situations, to manage our relationships with others, to take action and to identify and solve problems" (Jayaratna, 1994, p.70). Thus, what people do, and the way that they perceive what they and others do, will in our view not only result from their mental construct but will also then play a role in the future development of their mental construct - hence the dynamic. In our view it is here that the concept of ISS becomes meaningful for the individual, and we argue it is from this development of meaning that further action results.

Therefore, if we view practice associated with ISS formation as involving people, then as the theme indicates, it is our contention that what ISS formation is taken to be results from the interaction of the combined mental constructs of those involved in ISS formation. Furthermore, this interaction of dynamic mental constructs can be seen as an ongoing process of construction and reconstruction of reality (Berger & Luckmann, 1967; Knights & Murray, 1994) for those involved in ISS formation.

There is one more facet of the dynamic mental construct that we wish to mention, and that concerns the concept of power. In each of the other themes we have highlighted the exercise of power, based upon our analysis, as an important consideration in the way in which we can understand the themes. Power is also a factor in thinking about the concept of the dynamic mental construct, because we contend it is at this level that an exercise of power will be recognised as such (Jayaratna, 1994), either prior to, during, or after some action that is deemed an exercise of power. This is not saying that every exercise of power will be recognised as such, nor that everything that happens will be

viewed as an exercise of power. Rather, we are saying that as and when an exercise of power is recognised as such, then it is at the level of mental construct that it acquires meaning which may then influence action.

12.3. THE CONTRIBUTION TO KNOWLEDGE:- THE CONSTRUCTION AND RECONSTRUCTION OF ISS FORMATION

Taking all of the above into consideration, we see ISS formation practice in terms of micro-political activity, which is based upon the social and political interaction of people which results from their socially constructed view of reality. This constructed view of reality, together with any action taken, is in turn based upon the person's dynamic mental construct. This construction should not in our view be thought of as a one-off event; instead we argue that ISS formation reflects an ongoing process of construction *and* reconstruction of social reality (Berger & Luckman, 1967). We can now see the dynamic properties of the themes we have discussed as important parts of this continual dynamism between a person's mental construct and what they perceive around them. Thus, the themes discussed can be seen as forces influencing a persons mental construct, which in turn guides that person in constructing *and* reconstructing what they take to be ISS formation at any point in time. As a consequence, any action they take will in our view be based upon their constructed view at that point in time.

At the same time, in line with our discussion above, understanding the exercise of power has been an important factor in each of the themes. As we have argued (Sec. 12.2.5.) it is at the level of the mental construct that the exercise of power will in our view be considered. We have also argued that in each of the other four themes, the exercise of power has been important to our understanding of what happens. For this reason therefore, it is at the point of interaction with the dynamic mental construct, or rather at the point of perception and interpretation of each theme that many power relations will have any meaning (This does not mean that *every* exercise of power *will* be perceived, let alone interpreted as such). If we accept that ISS formation practice can be viewed as embedded in a web of power relations, the interaction between the dynamic mental construct and the themes we identify can be viewed as pivotal in understanding the exercise of power relations. This is because it is at the level of interaction in forming the

mental construct that we find help in deciding upon action (Jayaratna, 1994). Thus, the ongoing construction and reconstruction of reality will reflect power relations, those that are recognised at the level of mental construct, and those that are not recognised but which are implicitly part of a web of power relations (Foucault, 1980; Introna, 1997). We can therefore argue that ISS formation practice, based upon constructed and reconstructed social realities, will be a reflection of power relations at that point in time. This makes our ability to understand such relations all the more important.

The themes which we have identified as influential are important for ISS formation practice because we believe that they affect not only the way in which people perceive of ISS formation, but also any action they may take in practice. From this it follows that we do not believe that there is something out there called ISS formation which awaits our participation or investigation, but rather what we and others take to be ISS formation will depend upon our constructed view of social reality (Berger & Luckmann, 1967), and the actions that we take, both individually and collectively form the basis of ISS formation practice within an organisational setting.

The themes that we have discussed can now be brought together as shown below in Figure 12.1..

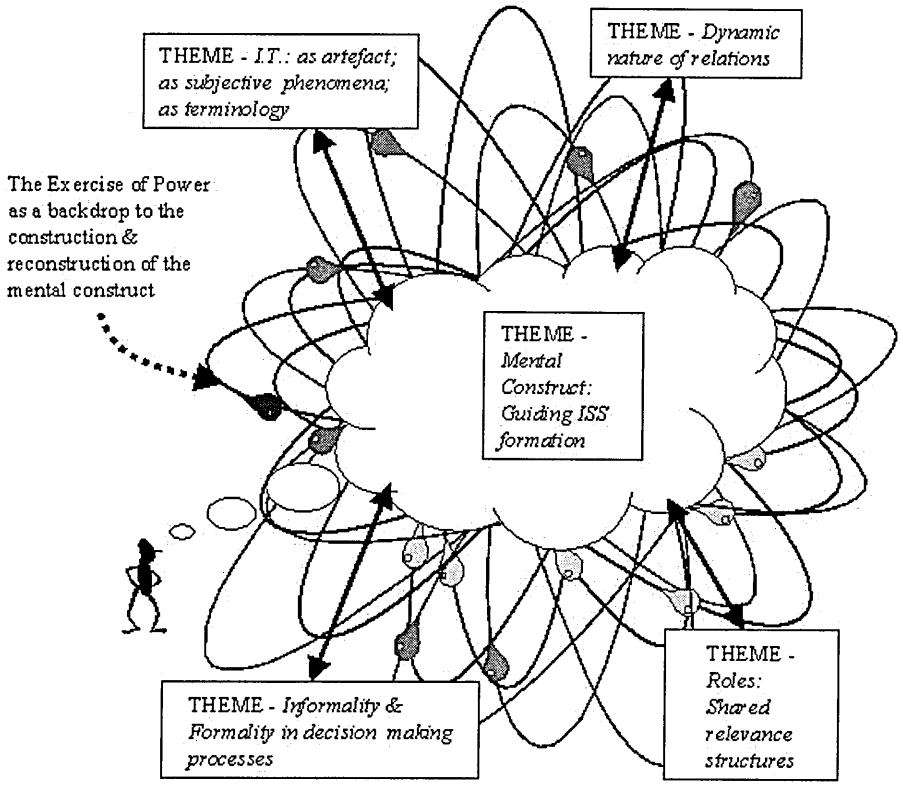

Figure 12.1. Social Reality of ISS Formation Constructed and Reconstructed

There are a number of points which arise from Figure 12.1.. The first of these points is our view that the themes represent factors which are important in an ongoing development of peoples dynamic mental constructs relative to ISS formation; that is, that as people make sense of the elements of social practice in the organisational settings they are engaged in, we argue that these themes impact upon the meanings they construct, and in turn any action that they then take. A second point is that we see the themes that we have identified as important in a dualistic sense, that is, interaction that leads to the ongoing construction and reconstruction (Berger & Luckmann, 1967) of what people perceive to be social reality of ISS formation. We are not suggesting that each person involved in ISS formation practice will stop to consider each of the themes before undertaking some action. Instead we argue that the themes are implicit (to greater or lesser extents at an individual level) as part of ongoing interaction between people, and that some or all of the themes are influential factors in the sense-making process of perception and interpretation by different people at various times.

This view that people socially construct what they take to be social reality in relation to ISS is supported by others (Knights & Murray, 1994; Scarborough, 1998). Indeed, utilising Scarborough's (1998) argument, we are not saying that people make up the idea of ISS formation, which would be seen as a "crude form of idealism, that is, of suggesting that ideas alone shape the world" (ibid., p.22). Instead we argue that the themes that we have identified are important in understanding the way in which people make sense of, and engage in practice that is termed ISS formation. Thus, while we argue that ISS as such does not exist out in the world - it cannot be touched - at the same time we are not suggesting that ISS formation is solely made up of thoughts. People work together utilising their expertise and knowledge, they often do produce ISS documentation of some form, and they do in our view often have some shared understanding of what is happening with ISS. While one person's socially constructed view of ISS may well differ from another's view of ISS, then the action that they undertake in ISS formation practice may well differ as a consequence. It is in the conglomeration of such varied activity that practice associated with ISS formation rests. One way of viewing this is as *a pattern in a stream of practice* (to paraphrase Mintzberg, 1978) in developing ISS. Following Smirisch and Stubbart (1985) we can see this as contributing to organisation making, that is, a part of the ongoing, everyday social practice that forms an important part of what we come to know as ISS formation in an organisational setting.

Another point regarding influence of the mental construct for ISS formation lies both with the way in which people perceive the exercise of power from the activities around them, and also with the way in which we can perceive of a web of power relations (Foucault, 1980; Hardy, 1994) forming a backdrop to the ongoing construction and reconstruction of ISS formation. It is at the conceptual level of mental construct that we can consider the exercise of power in ISS formation in a micro-analytic sense. On the one hand, as has been argued (Clegg, 1989; Jayaratna, 1994; Introna, 1997) we do not believe that it is necessarily the case that people will be aware of the exercise of power when it affects them. However, we have found that we can valuably consider the exercise of a web of power relations (Clegg, 1989; Hardy; 1994; Phillips, 1996) which can be perceived to act as "the backdrop against which all organisational actions and decisions take place" (Hardy, 1996). We see the exercise of power as a factor in the construction and reconstruction of mental constructs, in influencing the values, traditions, cultural

norms which become implicit in the mental construct (Jayaratna, 1994). It is this backdrop which adds the final dimension to Figure 12.1, those facets of a web of power relations within which the interactions between the themes and the mental construct are embedded.

In considering power configurations (Mintzberg, 1983), the practices and influence of both internal and external coalitions reflects the interaction of people. In any such process of interaction the perspectives of ISS formation will be constructed and reconstructed in line with influences upon the dynamic mental constructs of those involved as a result of relations between the coalitions. Thus, the relations implicit in power configurations influence and are influenced by the model shown in Figure 12.1., which provides us with a link between power configurations at a macro level of analysis and mental construct at a micro level in seeking to understand ISS formation.

We can now evaluate the implications of our findings for existing theory and for practice.

12.4. IMPLICATIONS FOR THEORY & FOR PRACTICE

In this section we will discuss the implications of our research for existing theory on ISS formation as a means of further elaborating our contribution to knowledge.

Our work supports other authors (e.g. Davies, 1991; Bloomfield & Coombs, 1992; Walsham, 1993; Jones, 1995) in highlighting the social and political aspects of ISS formation. Our findings contribute to this work by providing a new model (Figure 12.1.) through which we can investigate and endeavour to understand ISS formation practice.

Our model highlights the limitations of functionalist views of ISS formation (Galliers, 1991, Knights & Murray, 1994), what we termed a Classical perspective in Chapter Two. Our work demonstrates the limitations of views which do not address the political nature of ISS formation (e.g. Moynihan, 1990; Flynn & Goleniewska, 1993; Brown, 1994; Ward & Griffiths, 1996). For example, such views do not take account of the surprises, shift in preferences, political action and agendas that can occur in ISS

formation (Ciborra, 1994). We are also critical of this work because of the underlying assumption that ISS formation is a defined activity to which people contribute, and that this process proceeds systematically through stages (e.g. Flynn & Goleniewska, 1993; Andreu et al, 1994; Lederer & Salmela, 1996; Ward & Griffiths, 1996). In our view it is important to consider that individuals will vary in the way in which the themes that we have identified impact upon their mental constructs (Jayaratna, 1994), their sense-making processes (Weick, 1995), and in turn their actions. Hence, from our perspective the way in which they construct and reconstruct their views of social reality of ISS formation will affect what they do. As a result, ISS formation practice will from this perspective be subject to considerable variety, which is indeed what we have found in our research; where similar organisational settings, with similar contextual conditions, had considerable variance in the practice of ISS formation. Our model in Figure 12.1. suggest that an explanation of this variance lies particularly with the interaction of themes and mental constructs, and we argue that thinking about the socially constructed and reconstructed realities informing ISS formation practice is a valuable, and necessary step. Furthermore, our work highlights that we should not look at the themes we have identified in isolation or as static, but rather that we should recognise a dynamic, dualistic element to the interaction of these themes in influencing ISS formation.

This brings us to a further point, which concerns the *use* of our model. We would argue against using our model as a direct representation of an organisational situation, or as a model to be implemented in some way. Instead we would argue that we should use the model at an epistemological level, that is, as a way of thinking about and a means of understanding the complexity of a situation.

A further implication lies with the concept of power. We have found that considering the exercise of power in terms of four dimensions (Hardy, 1994, 1996; Phillips, 1997) has highlighted the importance of the concept of a web of power relations (Foucault, 1980; Hardy, 1994), which can be thought of as acting as a backdrop to ISS formation. In addition, we have found it valuable to consider the exercise of power in terms of the other three dimensions, as a way of understanding the actions of those involved. We discussed numerous instances where the exercise of power was evident in affecting what happened (e.g. sections: 6.1.3.4., 7.3.4., 8.3.4.). This highlights the limitations of views of ISS formation that have not addressed power as an issue at all (e.g. Earl, 1989;

Peppard, 1993; Neumann, 1994; Andreu et al, 1994; Robson, 1997), as we find that addressing the exercise of power in a relational sense gives us a necessary insight into social practice of ISS formation.

We can also reflect upon the concept of power configurations (Mintzberg, 1983), which we find to be a useful way of thinking about coalitions and power relations between them. However, our findings suggest that we need to guard against seeing such coalitions as fixed, or in assuming that all people involved in ISS formation will share an understanding of who else may or may not be within any such coalition. While Mintzberg (1983) does not suggest that the coalitions, or indeed configurations should be used in anything other than a conceptual manner, he displays a tendency towards making prescriptive observations (e.g. chp.24). Our findings suggest that it is very difficult to make assumptions about how such configurations may act. As our analysis suggests (see Figure 11.2), there can be considerable differences in apparent power configurations related to ISS formation in organisational settings that on the surface look similar. The reason for this we would argue can be better understood when we reflect upon our model shown in Figure 12.1.. Here we have provided a means of linking the actions of, and relations between, coalitions at a macro level with the actions, or more precisely the mental constructs of individuals at a micro level. The role of the dynamic mental construct (Jayaratna, 1994) is central to our findings therefore, as a means of conceptualising both the way in which individuals construct their own view of ISS formation, and also the way in which peoples interactions are founded upon these unique constructions.

Our findings also have implications for the views of ISS formation which we discussed in Chapter Two based upon Whittington's (1993) classificatory schema (Figure 2.1.). Whittington's perspective does not in our view take account of the possibility of there being more than one view of strategy, and hence does not allow for a constructionist view of ISS (Scarborough, 1998) where there may be multiple views. We have argued (Section 2.4.1.) that while we are sympathetic to the sentiment expressed within the systemic perspective, we have reservations about Whittington's use of the terms *systemic*. Our findings support our initial view, although we now argue that the term systemic is most appropriately considered in an epistemological sense (Jayaratna, 1994), rather than the ontological sense which Whittington expresses. Our reason for saying this

rests upon our view that a person's view of ISS formation will be socially constructed and reconstructed based upon their mental construct in the light of varying aspects of the themes we identify. Hence amongst a group of people, views of ISS formation will differ, as will notions of environment, and as will views of goals. From this standpoint, a systemic perspective (Whittington, 1993) of ISS is most appropriately perceived in an epistemological sense.

Having evaluated the implications of our findings for theory, we now consider the implications of our findings for practice. We continue to see work published which argues that existing approaches to ISS formation are not working and that more research is needed that looks at what is actually happening (Auer & Reponen, 1997; Hatten & Hatten, 1997; Earl, 1999; Pant & Hsu, 1999). An implication of such work is that we do not know enough about ISS formation - despite the large volume of work published in the area. Not only does much of the published work on ISS seek to tell practitioners (and practitioners to be) *what* to do, although not *how* (e.g. Earl, 1989; Ward Griffiths & Whitmore, 1990; Robson, 1997), but worse, very few authors acknowledge the existence, let alone importance, of mico-political activity which has been highlighted in our findings. The implications of our findings are that the interaction between the dynamic mental construct of those involved in the construction and reconstruction of ISS formation requires acknowledgement, and further attention - particularly in relation to the themes we have identified in our explanatory model (Fig. 12.1). We do not intend that our model is taken and used as a means of instructing practitioners *what* and *how* to do ISS formation. However, it does provide a means for those interested in practice to reflect upon the nature of ISS formation, their own activities and the activities of others, with a view to improving their understanding and ultimately, practice.

12.5. SUMMARY

In this chapter we have set out and discussed five themes which we have abstracted from our cross-case analysis of issues arising from Chapters Six to Eleven. This led to a discussion of our contribution to knowledge, based upon our findings that ISS formation can be conceived in terms of an ongoing process of construction and reconstruction of social reality, based upon individual mental constructs, which in turn are influenced by

the themes identified. We have represented this in a model (Figure 12.1.), although we have argued that our model should be considered as an epistemological device to aid our thinking about ISS formation, rather than as representation of how an ISS formation process *is*. We have also argued that ISS formation be considered as a reflection of power relations, hence heightening the importance of our preparedness to, and ability to understand the micro-political activity within which ISS formation is enmeshed. We ended by discussing the implications of our findings for existing knowledge.

From this we now move on to Chapter Thirteen, where we evaluate the learning that we have derived from this thesis, and consider future research arising from our work.

CHAPTER THIRTEEN - CRITICAL EVALUATION AND FURTHER RESEARCH

13.1. INTRODUCTION

This chapter critically evaluates the programme of research and learning that has taken place. This evaluation focuses upon the following areas: the field of research; the research method; the researcher. This structure is based upon the NIMSAD framework (Jayaratna, 1986, 1994) which provides a means of structuring our thinking about our action in problem situations.

Following this evaluation we identify areas for further work.

13.2. NIMSAD: A FRAMEWORK FOR CRITICAL EVALUATION

In order to critically evaluate the work undertaken in this thesis, a number of approaches were considered as a means of structuring our thinking. Firstly, Checkland (1991) argues that explicitly considering the interaction of F/M/A (Framework of Ideas /Method/Area of Application) provides us with a means of deriving learning from our interventions in any purposeful human action. In our view, this is helpful in drawing attention to key elements in a cycle of research, although we would argue that one element missing from this account is an explicit focus upon the researcher. The NIMSAD (Normative Information Model-based Systems Analysis and Design) framework builds upon the F/M/A view by explicitly incorporating the role of the researcher as an element for consideration. NIMSAD has been developed from experience gained through interventions in organisations as a means of evaluating methodologies (Jayaratna, 1994). There are three elements which are described (ibid.) as being essential to the NIMSAD framework, these being: the problem situation, the intended problem solver, and the problem solving process. It is the evaluation of these three elements that enables us to reflect upon and learn from action in the problem situation. The NIMSAD framework is illustrated in Figure 13.1 below.

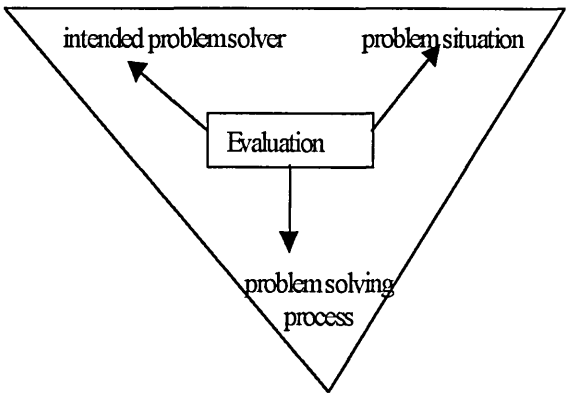

Figure 13.1. Essential elements of the NIMSAD Framework (Jayaratna, 1994, p.53)

Figure 13.1. illustrates the interrelationship between the three elements of the problem situation, each of which is linked through a process of evaluation. Research involving a contribution to knowledge, as opposed to a review or a description, in an organisational setting is concerned with problems. Hence, we can utilise the NIMSAD framework to reflect upon and learn from our activity as researchers in the research arena, that is, the problem situation. This process of critical self reflection is advocated as a means through which we undertake learning (Argyris, 1982; Schon, 1983; Checkland, 1991). Our amended wording based upon the NIMSAD framework is illustrated in Figure 13.2. below.

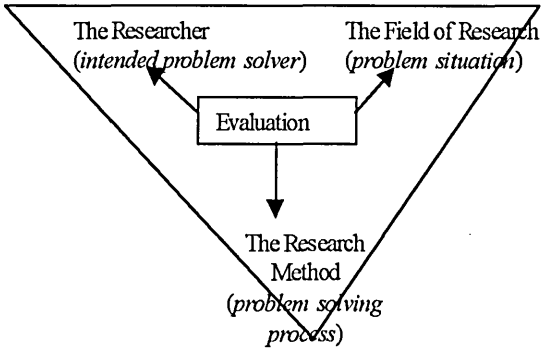

Figure 13.2. Evaluation of Research using the NIMSAD Framework (based upon Jayaratna, 1994, p.53)

By substituting terminology we argue that we can adapt the wording of the framework without undermining what we perceive to be the rationale of the framework. Therefore, the researcher can be substituted for the intended problem solver, the research method can be substituted for the problem solving process, and the field of research can be substituted for the problem situation. We have utilised these categories as a basis for our reflective evaluation of the thesis, and we now move on to consider the learning which has been derived from this process.

13.3. LEARNING DERIVED FROM THE THESIS

Several areas of learning which have been derived from this thesis, relating to the outcomes of the research programme, the use of research methods, and to the role of the researcher. Specifically, the areas of learning concern:

- Confronting micro-politics in ISS research
- Questioning the bases of differing perspectives in ISS research
- Maintaining a critical dialectic between theory and research practice
- Evaluating issues of validity in interpretive research methods
- Assessing the influence of pre-understanding

We see a practical outlet for this learning being in the form of advice to inexperienced researchers in the IS field, in addition to contributing to understanding for more experienced researchers.

13.3.1. CONFRONTING MICRO-POLITICS IN ISS RESEARCH

The view that ISS formation practice can be considered in terms of a social constructivist perspective has been a key feature of our learning. Rather than seeing ISS formation as a distinct process that is viewed consistently by all those involved, our view is that as a consequence of the varied ways in which people socially construct their views of reality, views of what ISS formation *is* will also vary. Indeed, our argument has been that what ISS formation is taken to be by those involved will be based upon a process of ongoing construction and reconstruction. This involves a dualistic process between the mental

constructs of those involved, and the themes which we present in our explanatory model (Figure 12.1.). While in our view people construct what they take to be a social reality of ISS formation at an individual level, the effect of collectively constructing realities while working with others will lead to areas of common agreement and understanding. The construction of such realities, together with the influencing of practices takes place at a micro level of activity, and it is here that consideration of the exercise of power is appropriate.

We are of the view that exploring ISS formation in terms of the role of power is important because of the pervasive nature of power in organisational practices (Clegg, 1989; Knights & Wilmott, 1999). There is however a danger that if we look for power then we will see power and vice versa, although this is not by any means confined to the concept of power alone - it is one of the problematic realities of research that we have to guard against (Silverman, 1993; Coffey & Atkinson, 1996). However, we would argue that if we ignore the role of power then we are ignoring a pervasive relational phenomenon, which can be conceived of as a web of relations (Clegg, 1989; Fincham, 1992) within which ISS formation practice takes place. The social and political nature of many IS related activities has been noted for some time (Pettigrew, 1973; Checkland, 1981; Markus, 1983; Markus & Bjorn Anderson, 1987) and it is in our view important to examine power as a key aspect of political activity. The critical examination of the social practice of ISS formation has brought to our attention facets of ISS practice that may otherwise have been overlooked, with the multi-dimensional conceptualisation of power (Hardy, 1994, 1996; Phillips, 1997) adopted here being useful. With reference to our framework for considering the exercise of power (Table 3.1.), we argue that to consider the exercise of power in one or more of the first three categories would miss a key aspect for a critical account (Knights & Vurdubakis, 1994), that being power of the system (Hardy, 1994). Talking about power of *the* system as though there is a single, identifiable system evident to all is in our view a limiting perspective. Instead we argue that we should conceive of system in an sense that recognises that different people may regard what *the system* is in different ways. We should therefore conceive of the term system in an epistemological sense (Jayaratna, 1994) - that is, as any set of activities deemed relevant by those perceiving them rather than an absolute, fixed set of activities.

If we accept that those engaged in ISS formation are forever embedded in a web of power relations, then every action, or inaction, relative to another person could be considered in terms of an exercise of power. It then becomes almost impossible to disregard power from any relationship. The point is, that we have found that researching power is not at all straightforward, and perhaps we should have heeded Walsham's (1993) warning that there are simpler ways of doing research and getting articles published than through trying to address power issues. However, this seems to be the very point, that power is a very difficult concept to research precisely because of its all pervading nature (Introna, 1997; Knights & Wilmott, 1999). In our view this is not a good enough reason to avoid researching the concept in view of both the numerous references to power as an issue in ISS formation (Davies, 1991; Walsham, 1993; Knights & Murray, 1994; Auer & Reponen, 1997; Sillince & Mouakket1997) as well as the findings of this thesis.

13.3.2. QUESTIONING THE BASES OF DIFFERING PERSPECTIVES IN ISS RESEARCH

One of the consequences of our findings is that they highlight problems in perceiving ISS formation as a distinct formal, rational process, in which people work cooperatively towards a uniformly recognised goal. These areas are problematic because if we accept the view of ISS formation as a socially constructed reality that is influenced by the themes that we have identified, then we cannot make any assumptions about the nature of ISS as a distinct process, and equally we cannot make any assumptions about people sharing a common recognition of goals, or working towards them. This makes the work on ISS formation that inhabits the classical, evolutionary, and processual perspectives in Whittington's (1993) framework, discussed in Chapter Two, seem less than satisfactory. Our work supports the view of authors who have argued that ISS formation should be seen in terms of complex social activity (Bloomfield & Coombs, 1992; Jones, 1995; Auer & Reponen, 1997), a view that is more appropriately considered in relation to the systemic perspective advocated by Whittington (1993).

While work which reflects the systemic perspective suggests that ISS will be a consequence of the social situation in which formation takes place, this does not in our view mean that such work is also more likely to provide opportunities for enhancing

practice. Our findings have suggested a weakness in Whittington's (1993) discussion of the systemic perspective, namely the ontological use of the concepts of strategy and system. Our findings show that what people take to be ISS formation will depend upon their perspective which in turn will be based upon their dynamic mental construct. This highlights to us the need for epistemological thinking (Jayaratna, 1994) in respect of the concepts *strategy* and *system*. Instead of suggesting that there is one system of interest, in this case a set of activities comprising ISS formation, we should be prepared to consider that any set of activities may be viewed as a system denoting ISS formation - it will depend upon the perception of the individual. It is this combination of factors, the complex social practice of ISS formation as well an apparent opportunity for epistemological thinking about ISS, that may account for a disparity between what is found through empirical study and what is suggested in much ISS formation literature which exhibits a classical perspective.

One final area has been important in our learning, and this has been related to the concept of the mental construct (Jayaratna, 1994). In our view, one of the reasons why we had difficulty in reconciling what we read about ISS formation with what we had experienced in practice, became clearer when we considered the notion of the mental construct. We are of the view that if we accept that the way in which people act (which includes them deciding not to act) can be thought of as being a consequence of their individual mental construct, then we should not be surprised when we see variation in ISS formation practice. In our view, if we accept that what people take to be ISS formation is seen as a consequence of a socially constructed reality, then it is also helpful to recognise that the way in which people construct that social reality will reflect their mental construct at that point in time. Thus, the concept of the mental construct has provided us with a means of thinking about the variance in thinking that underlie differences in social practice, as reflected in Figure 12.1..

13.3.3. MAINTAINING A CRITICAL DIALECTIC BETWEEN THEORY AND RESEARCH PRACTICE

We argue that within a perspective which may be labeled as critical hermeneutics (Myers, 1997) we find elements which are in our view essential to interpretive IS research, and indeed we can speculate, to IS research in general. Specifically, we are referring to the

need to maintain a critical dialectic between literature based theory and the research practice throughout the research process. The maintenance of this dialectic is vital in assisting the researcher to reflect upon practice in the light of relevant theory, and also to evaluate theory in the light of the developing research findings. We have found such a dialectical process to be invaluable in developing a critical appreciation of the data. At the same time, we found this process to be of value in the ongoing critique of theory as our thinking developed in a reflective manner through exposure to the fieldwork context and resultant empirical data. Given that the essence of an interpretivist perspective is in our view to defend our interpretation of what has happened in terms of logical consistency, subjectivity, and adequacy (see Table 4.1.), the maintenance of an ongoing critical evaluation of theory would seem to us to be central to a defence of adequacy. We regard this as an essential characteristic of IS work conducted from an interpretive perspective.

13.3.4. CONFRONTING ISSUES OF VALIDITY IN INTERPRETIVE RESEARCH METHODS

When we evaluate our use of research methods, one of our main areas of learning has centred upon the nature and validity of research methods for ISS. As a result of our research activities, we have come to question the nature of what we *can* and what we *do* gain from our research methods.

Our findings that people are engaged in the construction and reconstruction of social realities based upon their mental construct has not undermined the research methods that we chose; on the contrary, we are adamant that interpretive case studies are entirely appropriate as a valuable means of developing our understanding of ISS formation. However, we also recognise some limitations in the methods. For example, if relying solely on interviews we cannot be certain how representative of what actually happened an interviewees accounts are. Furthermore, even where we endeavour to get data from multiple sources as a means of strengthening the validity of the analysis (Kvale, 1989; Silverman, 1993), in our view we can never fully know a person's socially constructed view beyond their own account - which may itself be based upon their own post-hoc formulation (McKracken, 1988).

That said, we argue that an interpretive, longitudinal, comparative approach as adopted here is valuable as a means developing our understanding of ISS formation and the underlying phenomena (Walsham, 1995; Myers, 1997). Within that process, there is a need to recognise interviews for what they are - conversations between people at a particular historic juncture, rather than 'absolute truth' representations of the events and thought processes surrounding the situation of interest. This is not in our view problematic as long as we recognise the limitations of interviews, although it does highlight the need to have multiple sources of data, both from interviews and from documentary sources for example, when developing case studies.

Allied to the above discussion is a further area of learning, which pertains to the mental construct of the researcher in using research methods. We have come to appreciate the importance of the researcher reflecting upon their own mental constructs, and recognising that their mental construct will influence what they see, what they hear, and what they think. Therefore, we must guard against the notion that we as researchers can enter a research domain as unbiased observers of phenomena. It is this element of learning which leads us to agree with Spinelli (1989) who argues that we must not ignore the effect that any observer inevitably brings to the situation through language, experience, and perceptual influences.

This discussion highlights two clear issues for this researcher. The first issue concerns the fallacy of the independent, isolated observer, who clinically reports the *truth* of a situation in an institutional setting, accessed through the accounts of actions and of meanings ascribed to actions by those spoken with. What we report upon are either our own interpretations, expressed as best we can through language, or our interpretations of other peoples interpretations of what they think they did or said. In either case we have double the problem of linguistic expression to deal with (Geertz,1973). This leads to the second issue, which is the necessity for researchers to be as explicit as possible about their research methods in order to give the reader some means of evaluating the validity of the material they are presented with. This is particularly important when researching IS issues, which are inherently social and hence subjective (Kling, 1980; Nissen, 1985; Galliers, 1992; Land, 1992).

13.3.5. ASSESSING THE INFLUENCE OF PRE-UNDERSTANDING

Pre-understanding refers to the prior experience that a researcher may have of a domain, which we would argue forms a part of the mental construct of the researcher. Specifically, we argue that we must acknowledge the experience, or pre-understanding that we may bring to the process, in the form of influence upon our values, judgements, understanding of language, symbols, and associated practice based phenomena. In this instance, the researcher had several years of experience in the sector of interest, and it is this we wish to address. On the one hand we view such experience as beneficial as we regard it as having been very useful in helping us to understand aspects of the workings, both formally and informally, of the Police Service that may have remained hidden to others. Furthermore, this pre-understanding was useful in aiding the researcher in getting access to the research organisations in the first place. On the other hand though, we became aware of the potential bias that our experience could engender upon our ability to interpret what we saw and heard. The important point that arises is that we cannot deny our experience, and nor should we ignore it; instead, we should be explicit in acknowledging our experience, and reflect upon the implications that it may have for what we do, and what we find.

13.4. OPPORTUNITIES FOR FURTHER WORK

As a result of evaluating this programme of research, we have identified several opportunities for further research.

There continue to be calls for improved understanding of ISS formation, the perception being that existing approaches to ISS are not working in organisations (Auer & Reponen, 1997; Hatten & Hatten, 1997; Earl, 1999; Pant & Hsu, 1999). We have argued that ISS formation, far from being a distinct, formal, rational process, can instead be understood as a phenomenon of organisational practice that is socially constructed and reconstructed. We have developed an analytic proposition to theory (Miles & Huberman, 1994; Walsham, 1995) in the form of an explanatory conceptual framework (Fig.12.1) for considering the complex forces which act upon ISS formation as. However, our research has been conducted in the Police Service, and having now developed the

explanatory framework we see a clear opportunity to undertake research in other sectors to test the applicability of the framework, and to develop it accordingly. The study could be extended to cover other areas of the public sector, for example in the health service, but the research could also be repeated in private sector organisations. This latter area would be particularly interesting from a comparative perspective as a means of considering whether the themes we have identified are common across sectors.

Another opportunity is to undertake further research to develop the main results and findings in our thesis. In particular, Weick's (1995) view of belief driven and action driven processes provides a possible means of addressing how practitioners in ISS formation link their thoughts and perceptions together so that some form of collective action is possible. In addition, we find the concept of the dynamic mental construct to be important in the social construction and reconstruction of ISS formation. Similarly, we find that examining the role of power is usefully understood in a relational sense, and that this is a valuable means of helping us to further our understanding. However, whilst we have argued that we can conceive of power in the form of a web of power relations within which social practice takes place, at the same time we have found it valuable to explore power relations in terms of resources, processes, manipulation of perception (See Fig.3.1). There is scope for further investigation of both the role and nature of the dynamic mental construct in ISS formation, as well as to further explore the nature and effects of various forms of power relations. Further research in these areas will continue to develop our understanding of an area where so much attention has been given to formal, rational modes of thinking about ISS formation (e.g. Lederer & Sethi, 1992; Fidler & Rogerson, 1996; Ward & Griffiths, 1996), a view which we have argued is limited.

This leads us to consider another potential area for research, which concerns the use of research methods. We would like to see the further studies that we have called for above to be undertaken utilising the methods that we have used. It is our opinion that the continued use of interpretive, longitudinal case studies provides a valid means of developing an accumulated body of knowledge about ISS formation in various sectors which would then form a basis for comparative analysis. In addition, having argued in Chapter Four that action research, though valuable for IS research in general (Checkland, 1991; Baskerville & Wood-Harper, 1998), was not appropriate in this

instance we do nonetheless see action research as providing an opportunity for further research. We have noted the limitations inherent in using interviews as a research method, and would suggest that research is undertaken using our findings on ISS formation which are explored through studies that adopt an action research approach. Not only would this provide further learning regarding ISS formation, it would also provide a useful opportunity for comparative learning regarding action research and interpretive case studies. Of course there are limitations to such learning, not least the problems of reconciling the findings arising from the use of different methods in different studies, and the variation in the experience and perception of researchers undertaking the studies. Nonetheless, it would be valuable to reflect upon the level of understanding possible from direct involvement through an action research approach in comparison with the understanding gained through interviews.

In conclusion, both theory and practice related to ISS formation will in our view need to be more sophisticated for two reasons in particular. The first of these is that the social practice that gives rise to particular organisational settings is being undertaken in ever more complex circumstances, with success often hinging upon the effectiveness of IS (Earl, 1999) - and the Police service are certainly no different in this respect. The second reason is that the rapid changes in the nature of information technologies will continue to have effects that will emerge through the social practice within which their use is immersed (Klein & Myers, 1999). For these reasons, ISS will continue to be important to those working in organisations who are concerned with making effective use of IS and with making best use of emerging information technologies. Therefore, it will be necessary for both researchers and practitioners to have an improved understanding of the social practice of ISS formation, and it is to this area that our findings have made a contribution.

APPENDIX 1

Coding categories used (versions: first & final)

CODING CATEGORIES (first version)

1. POWER	3. STRATGY
1. Power of resources	1. Strategy in force
1. Nature of Resources usage	1. nature of
1. Information	2. drivers
2. Expertise	3. process
3. Access	4. problems
4. Credibility	2. IT strategy in force
5. Control of Finance	1. nature of
6. Stature/prestige	2. drivers
7. other	3. process
2. Control of resources	4. problems
3. Instances of resource manipulation	3. National strategy
4. Decision making	1. nature of
2. Power of processes	2. drivers
1. nature of process	3. process
2. involved	4. problems
3. not involved	**4. RELATIONSHIPS**
4. control of access	1. Between people
3. Power of meaning	1. police -v- police
1. symbols	2. police -v- civilian
2. vocabuary/language	3. civilian -v- civilian
3. culture	2. Between force and 'other'
4. rituals	3. Related to technology
4. Power of the system	4. Related to management style
1. Influence of institutions/practce	5. Inclusion/exclusion
2. powerlessness	6. Organisational Worth
5. Power (other)	**5. AREAS**
2. PEOPLE	1. Concepts
1. Police	2. Stories
1. view of own role	3. Themes
2. views of IT civilians	4. Time
3. views of civilians per se	5. good quotes
4. relationship with civilians	**6. FORCES**
5. views of IT	1. Case A
2. Civilian	2. Case B
1. view of self in force	3. Case C
2. view of police	4. Case D
3. relationship with police	5. Case E
4. views of IT	6. Case F

Coding Categories (final version)

(1) /forces	**(5) /areas**
(1 1) /forces/case A	(5 1) /areas/concepts
(1 2) /forces/case B	(5 2) /areas/stories
(1 3) /forces/case C	(5 3) /areas/themes
(1 4) /forces/case D	(5 3 1) /decision making process
(1 5) /forces/case E	(5 3 1 1) /driven from the top
(1 6) /forces/case F	(5 3 1 2) /problems making decisions
	(5 3 1 3) /informality; ad hoc approach to IT
	(5 3 1 4) /formality
(2) /people	(5 3 2) /it's about IT
(2 1) /people/police	(5 3 2 2) /subjecivity; & IT disasters
(2 1 1) /people/police/CC&DCC	(5 3 2 3) /'talking about' IT
(2 2) /people/civilian	(5 3 2 4) /differing levels of IT understanding/meaning
(2 3) /people/relationships with	(5 3 2 5) /the IT as IT
(2 3 1) /police	(5 3 4) /its about interaction in & between organisation
(2 3 2) /civilians	(5 3 4 1) /efficiency
(2 3 3) /IT people	(5 3 4 2) /nature of policing
(2 3 4) /community	(5 3 4 2 1) /bureaucracy
(2 3 5) /HMI	(5 3 4 2 2) /changes & IS
(2 3 6) /govt	(5 3 4 2 3) /pressures to change IS
(2 3 7) /other	(5 3 4 2 4) /effects
(3) /strategy	(5 3 5) /roles & influence
(3 1) /strategy/ISS force	(5 3 5 1) /roles in authority
(3 1 1) /process	(5 3 5 1 1) /Chiefs&ACPOS
(3 1 2) /good&bad	(5 3 5 1 4) /being 'in control'
(3 1 3) /influences o n	(5 3 5 2) /positions of influence - knowledge
(3 2) /strategy/national ISS	(5 3 5 3) /interest in ISS
(3 2 1) /process	**(5 5) /areas/good quotes**
(3 2 2) /good&bad	**(5 6) /areas/metaphors**
(3 2 3) /influences on	(5 6 1) /IT related
(3 3) /strategy/view of strategy	(5 6 2) /process
(4) /power	(5 6 2 1) /control of
(4 1) /power/resources	(5 6 2 2) /changing
(4 2) /power/processes	(5 6 3) /strategy
(4 3) /power/meaning	(5 6 4) /organisation
(4 4) /power/system	**(5 7) /areas/history & structure**
(4 5) /power/other	(5 7 1) /non-it
	(5 7 2) /IT
	(5 7 3) /technology in policing

APPENDIX 2

CASE A POLICE FORCE

Mission Statement 1991-1998

[Case A Police Force] at all levels is committed to upholding the rule of law throughout [Case A Police Force]area and to exercising the policing function efficiently and with courtesy, integrity and fairness, thereby maintaining and improving the quality of life for all citizens. It will constantly strive to foster good relations with the public which it exists to serve, to respond positively to local needs and, by adapting innovative policies, to improve the quality of service provided. As an employer, it undertakes to maintain a caring attitude to all personnel and to provide them with equality of opportunity to enable each one of them to achieve their maximum potential.

Focus of Objectives:

- Quality of service
- Crime reduction
- Road safety
- Community safety
- Victims of crime
- Personal performance

APPENDIX 3

CASE B POLICE FORCE - FORCE POLICING PLAN

Policing Plan

[Case B Police Force] aims to provide an efficient, professional service that creates a safer environment for the people of [this area of] Scotland. To focus on priorities, the Force consulted local communities in a planning process which has produced a clear vision for policing through the millennium. The plans - strategic, forcewide and local - call for a continued high level of activity and response from [Case B Police Force] in partnership with other agencies and with the co-operation of local people.

Strategic Aims 1997-2001

- Community Safety - create Safer Communities through partnerships
- Crime - prevention, detection and education to reduce crime
- Drugs - stifle supply through enforcement, education, awareness and diversion
- Roads Policing - educate, encourage, engineer and enforce for safer roads
- Operational Delivery - respond professionally through training, systems and structures

Policing Priorities 1997-2001

- reduce road casualties
- combat drugs misuse
- tackle local issues
- meet call response targets
- communicate with our customers
- create a safe environment for millennium celebrations
- improve support staff structures
- expand crime and assistance desks
- use police buildings effectively

APPENDIX 4

CASE B POLICE FORCE IT STRATEGY 1997-2001

Executive Summary

The Information Technology Department of [Case B Police Force], seeks to provide high quality information and telephony services designed to meet the needs of all sections of the Force whilst recognising the strategies for information systems and information technologies developed by the Scottish Police Service.

Our IT strategy reflects the objectives and priorities outlined in the Force corporate plan. To do this the strategy demands that:

- All proposed investments in information technology are supported by a business case in the agreed format;
- Any investment will include consideration of the real benefits to the force and these benefits will clearly reflect the Force's strategic aims;
- Regular liaison will take place between the Force executive, Divisional Commanders, other Senior Managers and the IT Department.

The IT strategy of [Case B Police Force] cannot be viewed in isolation. There will be a close monitoring of the external environment for events which are outwith our control but which affect our direction. Such factors will include systems which form part of National Strategies and tend to drive towards centralised control with a reduced emphasis on local research and development.

The strategy recognises and addresses:

- The convergence of technologies, especially in the areas of computing and communications;
- The exponential growth of the desktop PC, both in terms of absolute numbers and power;
- The increasing *total* cost of IT ownership.

Within the strategy there will at all times be a bias towards market testing, with careful consideration of which services should or could be tested and those which, in the interests of operational policing, must be retained in-house.

The strategy is based on a policy of exploiting our existing assets whilst recognising future opportunities which may emerge from the developing National and Scottish Police IS/IT Strategies.

It follows that [Case B Police Force] will:

- Resist the development of further tailor made application;
- Resist the development of small systems which are not accompanied by a fully argued business case;

- Avoid implementing technology which is not mainstream;
- Decline to implement technical solutions which do not fall within the broad principles of the strategy
- Exploit to our maximum advantage any opportunities which develop from the National and the Scottish IS/IT Strategies;
- Ensure that all system implementations have an involvement of a product champion from the sponsoring division/department, and that the development follows established project management protocols;
- Provide customer support which deals with faults and enhancements in a prompt and efficient manner;
- Ensure that systems meet the user's needs;
- That the service we provide is available throughout the Force.

The adoption of the policies detailed above will assist [Case B Police Force] to plan towards a coherent and considered strategy implementation, having consideration to the short, medium and long term requirements of the Force. In this case, the forthcoming financial year should, at all times be regarded as the short term; the medium term, years two and three and the long terms, years four and five. In the field of information technology it is difficult to be prescriptive in the long term. Accordingly the drop-off in the project programme should not be regarded as being indicative of a reduction in demand but more the difficulty of forecasting the unknown.

APPENDIX 5

CASE D POLICE FORCE: IT STRATEGY 1992-1994, OBJECTIVES.

The following gives details of the objectives for the computer section as shown in the IT strategy document, and a description of 'strategy' which is shown under each objective in the document.

Objective 1

To introduce the Force crime recording system as a pilot system in the [area] sub-division and thereafter at [area] sub-division and to evaluate the results including training implications, in order that a specification can be prepared to implement the system Force wide on a Unix based processor in 1993

Strategy

The first part of the objective has been met in as much as the pilot system is currently under way at [area].

Constant evaluation is taking place between [area] and the IT staff and a Sgt is acting as liaison between both parties.

A full scale evaluation exercise if planned to take place in March. The remainder of the objective will very much depend on the outcome of the March meeting.

Objective 2

To review the current mainframe application software in use within the Force and propose alternative systems in terms of hardware and software.

Strategy

To discuss the feasibility or otherwise of exporting current mainframe applications to a Unix based platform with relevant software houses and departmental staff.

Objective 3

To complete necessary software changes on the Force Personnel computer system and thereafter make the systems available over the wide area network with restricted read only access.

Strategy

To liase with [supplier] and Personnel staff in order that current software problems be resolved and thereafter in consultation with [consultants]implement WAN access.

Objective 4

To replace the existing computer systems in the Force Typing Pool with personal computers and a facility for Free Text retrieval in respect of Force Orders.

Strategy

Consultation on going with HRC staff and IT staff with a view to provide a test system in the first quarter of the year using ICL DRS 300 equipment and ICL PC's.

Thereafter, dependent on test results, implement system in typing pool.

Objective 5

With the proviso that Capital Funding becomes available implement hardware enhancements to the Wide Area network to provide greater resilience to the system.

Strategy

This objective has been discussed with [consultants]and is purely dependent on capital finance being available.

APPENDIX 6

SCOTTISH POLICE IS STRATEGY (SPISS) - THE 10 STAGES FOR DEVELOPMENT OF SPISS

1. Complete the work of the working party in respect of information sets and entities

2. Produce information flow diagrams and volume projections for each of the key areas and to formulate the potential developments that need to form part of the technological strategy

3. Produce a full Information Strategy setting out the needs of the Service, the areas where developments are required and the relevant standards

4. Review fully and from a technological view point current and planned systems within Forces and Nationally

5. Based on the requirements identified in stage 3 work up a series of technical options in each area. Options could include a mixture of local, distributed and central systems and varying degrees of integration of data

6. Carry out an incremental cost benefit analysis to find the combination of projects that provides the greatest overall benefit from the available finance AND provide a sensible development path. Such an exercise will include various options for each project

7. Work up a network strategy for Scotland in combination with PNN to provide for the future needs of the IS programme. Networking standards and availability will be crucial to the success of the Strategy and will represent a major element of the costs involved

8. Complete an Information technology (or Systems) Strategy setting out a proposed programme of work and requirements in respect of the then current industry and national standards for data, hardware, communications, etc.

9. Mechanisms need to be established through which Forces can exchange ideas and share development work in respect of Local systems

10. Consideration may well need to be given to co-operation in respect of procurement hardware and software particularly if the joint purchasing arrangements with local authorities use by some Forces come to an end.

APPENDIX 7

SCOTTISH POLICE IS STRATEGY - APPLICATION AREAS

BROAD APPLICATION AREA	DETAILED APPLICATION AREA
Command & Control	Casualty Bureau
	Command & Control
	Geographic Information
	Incident recording
	Messaging/Data exchange
	Operations Planning
	Police Firearms
	Premises Register
	Resource Allocation
	Resource Register
	Road/Weather Conditions
Crime (Specialist)	Cheques and Credit cards
	Crime Invest/Enquiry Mgt.
	Crime Pattern Analysis
	Crime: Major enquiry mgt.
	Fingerprints
	Geographic Information
	Handwriting Register
	Intelligence
	Intelligence Analysis
	Stolen/lost/found property
	Vehicles
Crime (general)	Crime Invest/Enquiry Mgt.
	Crime Pattern Analysis
	Crime prevention
	Crime recording
	Fingerprints
	Geographic Information
	Handwriting Register
	Intelligence
	Intelligence analysis
	Stolen/lost/found property
	Vehicles
Traffic	Escort Planning
	Fleet management
	Geographic Information
	Road Accidents
	Road/Weather Conditions
	Traffic management

Finance & Administration	Accounting (debtors etc.)
	Accounting (management)
	Civil Claims
	Contract management
	Force reference database
	Information/research database
	Inspection
	Office Automation
	Payroll
	Property/Energy Mgt.
	Public Relations
	Stolen/lost/found property
	Superannuation/Pensions
	Supplies
Personnel & Training	Complaints & Discipline
	Payroll
	Personnel
	Police Firearms
	Resource Allocation
	Resource Register
	Sickness/Occup. Health
	Training Administration
Legal	Case Preparation
	Citations
	Custody recording
	Fingerprints
	Handwriting register
	Legal database
	Messaging/Data exchange
	Names/criminal history
	Productions
	Warrants
Licensing & Registration	Alien registration
	DNA register
	Laboratory/I.B. Mgt.
	Licensing (Firearms/Shotguns)
	Licensing (General)
	Photograph Library
	Premises register
	Shooting sites register
	Tape Library (Audio, Video, etc.)
	Weapons Register

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